

APPENDIX C
AIR SAMPLE LABORATORY REPORTS



ANALYTICAL REPORT

| | |
|-----------------|--------------------------------------------------------------------------------|
| Lab Number: | L1417001 |
| Client: | Environmental Health & Engineering Inc. 117 Fourth Ave Needham, MA 02494 |
| ATTN: | Taeko Minegishi |
| Phone: | (781) 247-4300 |
| Project Name: | 19374 |
| Project Number: | 19374 |
| Report Date: | 08/04/14 |

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320 Forbes Boulevard, Mansfield, MA 02048-1806
508-822-9300 (Fax) 508-822-3288 800-624-9220 - www.alphalab.com



Project Name: 19374
Project Number: 19374

Lab Number: L1417001
Report Date: 08/04/14

| Alpha Sample ID | Client ID | Matrix | Sample Location | Collection Date/Time | Receive Date |
|----------------------------|------------------|---------------|----------------------------|---------------------------------|---------------------|
| L1417001-01 | 154898 | AIR MEDIA | Not Specified | | 07/30/14 |
| L1417001-02 | 154901 | AIR MEDIA | Not Specified | | 07/30/14 |
| L1417001-03 | 154902 | AIR MEDIA | Not Specified | | 07/30/14 |
| L1417001-04 | 154903 | AIR MEDIA | Not Specified | | 07/30/14 |
| L1417001-05 | 154904 | AIR MEDIA | Not Specified | | 07/30/14 |
| L1417001-06 | 154905 | AIR MEDIA | Not Specified | | 07/30/14 |
| L1417001-07 | 154907 | AIR MEDIA | Not Specified | | 07/30/14 |
| L1417001-08 | 154908 | AIR MEDIA | Not Specified | | 07/30/14 |

Project Name: 19374**Lab Number:** L1417001**Project Number:** 19374**Report Date:** 08/04/14

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Performance criteria for CAM and RCP methods allow for some LCS compound failures to occur and still be within method compliance. In these instances, the specific failures are not narrated but are noted in the associated QC table. This information is also incorporated in the Data Usability format for our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Project Name: 19374
Project Number: 19374

Lab Number: L1417001
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Case Narrative (continued)

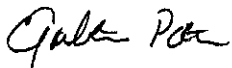
PCBs in Air

Sample L1417001-01 had a non-target peak removed from the range of the Trichlorobiphenyl result.

The WG709972-2 LCS recovery for Cl2-BZ#4/#10 (154%), associated with L1417001-01 through -08, is outside the acceptance criteria for individual target compounds, but within the overall method allowances.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Elizabeth Porta

Title: Technical Director/Representative

Date: 08/04/14

ORGANICS

PCBS

Project Name: 19374

Lab Number: L1417001

Project Number: 19374

Report Date: 08/04/14

SAMPLE RESULTS

Lab ID: L1417001-01
 Client ID: 154898
 Sample Location: Not Specified
 Matrix: Air Media
 Analytical Method: 105,8270D-SIM/NOAA-M
 Analytical Date: 08/01/14 01:31
 Analyst: CM

Date Collected:
 Date Received: 07/30/14
 Field Prep: Not Specified
 Extraction Method: EPA 3540C
 Extraction Date: 07/30/14 17:25

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|----------------------------------------------------|--------|-----------|---------|------|-----|-----------------|
| PCB Homologs by GC/MS-SIM (LowVol) - Mansfield Lab | | | | | | |
| Monochlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Dichlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Trichlorobiphenyls | 25.6 | | ng/cart | 10.0 | -- | 1 |
| Tetrachlorobiphenyls | 92.4 | | ng/cart | 10.0 | -- | 1 |
| Pentachlorobiphenyls | 117 | | ng/cart | 10.0 | -- | 1 |
| Hexachlorobiphenyls | 60.0 | | ng/cart | 10.0 | -- | 1 |
| Heptachlorobiphenyls | 27.4 | | ng/cart | 10.0 | -- | 1 |
| Octachlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Nonachlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Decachlorobiphenyl | ND | | ng/cart | 10.0 | -- | 1 |
| Total Homologs | 322 | | ng/cart | 10.0 | -- | 1 |

| Surrogate | % Recovery | Qualifier | Acceptance Criteria |
|----------------|------------|-----------|---------------------|
| CI3-BZ#19-C13 | 103 | | 50-125 |
| CI8-BZ#202-C13 | 99 | | 50-125 |

Project Name: 19374

Lab Number: L1417001

Project Number: 19374

Report Date: 08/04/14

SAMPLE RESULTS

Lab ID: L1417001-02
 Client ID: 154901
 Sample Location: Not Specified
 Matrix: Air Media
 Analytical Method: 105,8270D-SIM/NOAA-M
 Analytical Date: 08/01/14 02:45
 Analyst: CM

Date Collected:
 Date Received: 07/30/14
 Field Prep: Not Specified
 Extraction Method: EPA 3540C
 Extraction Date: 07/30/14 17:25

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|-----------|--------|-----------|-------|----|-----|-----------------|
|-----------|--------|-----------|-------|----|-----|-----------------|

PCB Homologs by GC/MS-SIM (LowVol) - Mansfield Lab

| | | | | | | |
|----------------------|------|--|---------|------|----|---|
| Monochlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Dichlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Trichlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Tetrachlorobiphenyls | 15.0 | | ng/cart | 10.0 | -- | 1 |
| Pentachlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Hexachlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Heptachlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Octachlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Nonachlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Decachlorobiphenyl | ND | | ng/cart | 10.0 | -- | 1 |
| Total Homologs | 15.0 | | ng/cart | 10.0 | -- | 1 |

| Surrogate | % Recovery | Qualifier | Acceptance Criteria |
|----------------|------------|-----------|---------------------|
| CI3-BZ#19-C13 | 102 | | 50-125 |
| CI8-BZ#202-C13 | 95 | | 50-125 |



Project Name: 19374

Lab Number: L1417001

Project Number: 19374

Report Date: 08/04/14

SAMPLE RESULTS

Lab ID: L1417001-03
 Client ID: 154902
 Sample Location: Not Specified
 Matrix: Air Media
 Analytical Method: 105,8270D-SIM/NOAA-M
 Analytical Date: 08/01/14 03:59
 Analyst: CM

Date Collected:
 Date Received: 07/30/14
 Field Prep: Not Specified
 Extraction Method: EPA 3540C
 Extraction Date: 07/30/14 17:25

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|----------------------------------------------------|--------|-----------|---------|------|-----|-----------------|
| PCB Homologs by GC/MS-SIM (LowVol) - Mansfield Lab | | | | | | |
| Monochlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Dichlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Trichlorobiphenyls | 18.9 | | ng/cart | 10.0 | -- | 1 |
| Tetrachlorobiphenyls | 31.5 | | ng/cart | 10.0 | -- | 1 |
| Pentachlorobiphenyls | 17.5 | | ng/cart | 10.0 | -- | 1 |
| Hexachlorobiphenyls | 12.5 | | ng/cart | 10.0 | -- | 1 |
| Heptachlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Octachlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Nonachlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Decachlorobiphenyl | ND | | ng/cart | 10.0 | -- | 1 |
| Total Homologs | 80.4 | | ng/cart | 10.0 | -- | 1 |

| Surrogate | % Recovery | Qualifier | Acceptance Criteria |
|----------------|------------|-----------|---------------------|
| Cl3-BZ#19-C13 | 96 | | 50-125 |
| Cl8-BZ#202-C13 | 93 | | 50-125 |

Project Name: 19374

Lab Number: L1417001

Project Number: 19374

Report Date: 08/04/14

SAMPLE RESULTS

Lab ID: L1417001-04
 Client ID: 154903
 Sample Location: Not Specified
 Matrix: Air Media
 Analytical Method: 105,8270D-SIM/NOAA-M
 Analytical Date: 08/01/14 05:12
 Analyst: CM

Date Collected:
 Date Received: 07/30/14
 Field Prep: Not Specified
 Extraction Method: EPA 3540C
 Extraction Date: 07/30/14 17:25

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|----------------------------------------------------|--------|-----------|---------|------|-----|-----------------|
| PCB Homologs by GC/MS-SIM (LowVol) - Mansfield Lab | | | | | | |
| Monochlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Dichlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Trichlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Tetrachlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Pentachlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Hexachlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Heptachlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Octachlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Nonachlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Decachlorobiphenyl | ND | | ng/cart | 10.0 | -- | 1 |
| Total Homologs | ND | | ng/cart | 10.0 | -- | 1 |

| Surrogate | % Recovery | Qualifier | Acceptance Criteria |
|----------------|------------|-----------|---------------------|
| Cl3-BZ#19-C13 | 103 | | 50-125 |
| Cl8-BZ#202-C13 | 97 | | 50-125 |

Project Name: 19374
Project Number: 19374

Serial_No:08041420:31
Lab Number: L1417001
Report Date: 08/04/14

SAMPLE RESULTS

Lab ID: L1417001-05
Client ID: 154904
Sample Location: Not Specified
Matrix: Air Media
Analytical Method: 105,8270D-SIM/NOAA-M
Analytical Date: 08/01/14 06:26
Analyst: CM

Date Collected:
Date Received: 07/30/14
Field Prep: Not Specified
Extraction Method: EPA 3540C
Extraction Date: 07/30/14 17:25

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|----------------------------------------------------|--------|-----------|---------|------|-----|-----------------|
| PCB Homologs by GC/MS-SIM (LowVol) - Mansfield Lab | | | | | | |
| Monochlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Dichlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Trichlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Tetrachlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Pentachlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Hexachlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Heptachlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Octachlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Nonachlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Decachlorobiphenyl | ND | | ng/cart | 10.0 | -- | 1 |
| Total Homologs | ND | | ng/cart | 10.0 | -- | 1 |

| Surrogate | % Recovery | Qualifier | Acceptance Criteria |
|----------------|------------|-----------|---------------------|
| Cl3-BZ#19-C13 | 100 | | 50-125 |
| Cl8-BZ#202-C13 | 104 | | 50-125 |

Project Name: 19374

Lab Number: L1417001

Project Number: 19374

Report Date: 08/04/14

SAMPLE RESULTS

Lab ID: L1417001-06
 Client ID: 154905
 Sample Location: Not Specified
 Matrix: Air Media
 Analytical Method: 105,8270D-SIM/NOAA-M
 Analytical Date: 08/01/14 07:40
 Analyst: CM

Date Collected:
 Date Received: 07/30/14
 Field Prep: Not Specified
 Extraction Method: EPA 3540C
 Extraction Date: 07/30/14 17:25

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|-----------|--------|-----------|-------|----|-----|-----------------|
|-----------|--------|-----------|-------|----|-----|-----------------|

PCB Homologs by GC/MS-SIM (LowVol) - Mansfield Lab

| | | | | | | |
|----------------------|----|--|---------|------|----|---|
| Monochlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Dichlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Trichlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Tetrachlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Pentachlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Hexachlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Heptachlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Octachlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Nonachlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Decachlorobiphenyl | ND | | ng/cart | 10.0 | -- | 1 |
| Total Homologs | ND | | ng/cart | 10.0 | -- | 1 |

| Surrogate | % Recovery | Qualifier | Acceptance Criteria |
|----------------|------------|-----------|---------------------|
| Cl3-BZ#19-C13 | 106 | | 50-125 |
| Cl8-BZ#202-C13 | 100 | | 50-125 |

Project Name: 19374
Project Number: 19374

Serial_No:08041420:31
Lab Number: L1417001
Report Date: 08/04/14

SAMPLE RESULTS

Lab ID: L1417001-07
Client ID: 154907
Sample Location: Not Specified
Matrix: Air Media
Analytical Method: 105,8270D-SIM/NOAA-M
Analytical Date: 08/01/14 08:53
Analyst: CM

Date Collected:
Date Received: 07/30/14
Field Prep: Not Specified
Extraction Method: EPA 3540C
Extraction Date: 07/30/14 17:25

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|----------------------------------------------------|--------|-----------|---------|------|-----|-----------------|
| PCB Homologs by GC/MS-SIM (LowVol) - Mansfield Lab | | | | | | |
| Monochlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Dichlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Trichlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Tetrachlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Pentachlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Hexachlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Heptachlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Octachlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Nonachlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Decachlorobiphenyl | ND | | ng/cart | 10.0 | -- | 1 |
| Total Homologs | ND | | ng/cart | 10.0 | -- | 1 |

| Surrogate | % Recovery | Qualifier | Acceptance Criteria |
|----------------|------------|-----------|---------------------|
| CI3-BZ#19-C13 | 106 | | 50-125 |
| CI8-BZ#202-C13 | 103 | | 50-125 |

Project Name: 19374

Lab Number: L1417001

Project Number: 19374

Report Date: 08/04/14

SAMPLE RESULTS

Lab ID: L1417001-08
 Client ID: 154908
 Sample Location: Not Specified
 Matrix: Air Media
 Analytical Method: 105,8270D-SIM/NOAA-M
 Analytical Date: 08/01/14 10:07
 Analyst: CM

Date Collected:
 Date Received: 07/30/14
 Field Prep: Not Specified
 Extraction Method: EPA 3540C
 Extraction Date: 07/30/14 17:25

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|----------------------------------------------------|--------|-----------|---------|------|-----|-----------------|
| PCB Homologs by GC/MS-SIM (LowVol) - Mansfield Lab | | | | | | |
| Monochlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Dichlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Trichlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Tetrachlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Pentachlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Hexachlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Heptachlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Octachlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Nonachlorobiphenyls | ND | | ng/cart | 10.0 | -- | 1 |
| Decachlorobiphenyl | ND | | ng/cart | 10.0 | -- | 1 |
| Total Homologs | ND | | ng/cart | 10.0 | -- | 1 |

| Surrogate | % Recovery | Qualifier | Acceptance Criteria |
|----------------|------------|-----------|---------------------|
| Cl3-BZ#19-C13 | 106 | | 50-125 |
| Cl8-BZ#202-C13 | 103 | | 50-125 |

Project Name: 19374

Lab Number: L1417001

Project Number: 19374

Report Date: 08/04/14

Method Blank Analysis Batch Quality Control

Analytical Method: 105,8270D-SIM/NOAA-M

Extraction Method: EPA 3540C

Analytical Date: 07/31/14 15:52

Extraction Date: 07/30/14 17:25

Analyst: CM

| Parameter | Result | Qualifier | Units | RL | MDL |
|-------------------------------------------------------------------------------------------|--------|-----------|---------|------|-----|
| PCB Homologs by GC/MS-SIM (LowVol) - Mansfield Lab for sample(s): 01-08 Batch: WG709972-1 | | | | | |
| Monochlorobiphenyls | ND | | ng/cart | 10.0 | -- |
| Dichlorobiphenyls | ND | | ng/cart | 10.0 | -- |
| Trichlorobiphenyls | ND | | ng/cart | 10.0 | -- |
| Tetrachlorobiphenyls | ND | | ng/cart | 10.0 | -- |
| Pentachlorobiphenyls | ND | | ng/cart | 10.0 | -- |
| Hexachlorobiphenyls | ND | | ng/cart | 10.0 | -- |
| Heptachlorobiphenyls | ND | | ng/cart | 10.0 | -- |
| Octachlorobiphenyls | ND | | ng/cart | 10.0 | -- |
| Nonachlorobiphenyls | ND | | ng/cart | 10.0 | -- |
| Decachlorobiphenyl | ND | | ng/cart | 10.0 | -- |
| Total Homologs | ND | | ng/cart | 10.0 | -- |

| Surrogate | %Recovery | Qualifier | Acceptance Criteria |
|----------------|-----------|-----------|------------------------|
| Cl3-BZ#19-C13 | 102 | | 50-125 |
| Cl8-BZ#202-C13 | 98 | | 50-125 |

Lab Control Sample Analysis Batch Quality Control

Project Name: 19374

Project Number: 19374

Lab Number: L1417001

Report Date: 08/04/14

| Parameter | LCS %Recovery | Qual | LCSD %Recovery | Qual | %Recovery Limits | RPD | Qual | RPD Limits |
|--------------------------------------------------------------------------------------------------|------------------|------|-------------------|------|---------------------|-----|------|---------------|
| PCB Homologs by GC/MS-SIM (LowVol) - Mansfield Lab Associated sample(s): 01-08 Batch: WG709972-2 | | | | | | | | |
| CI1-BZ#1 | 126 | | - | | 40-140 | - | | 30 |
| CL1-BZ#3 | 124 | | - | | 40-140 | - | | 30 |
| CI2-BZ#4/#10 | 154 | Q | - | | 40-140 | - | | 30 |
| CI2-BZ#8 | 127 | | - | | 40-140 | - | | 30 |
| CI3-BZ#19 | 122 | | - | | 40-140 | - | | 30 |
| CI3-BZ#18 | 115 | | - | | 40-140 | - | | 30 |
| CI2-BZ#15 | 109 | | - | | 40-140 | - | | 30 |
| CI4-BZ#54 | 124 | | - | | 40-140 | - | | 30 |
| CI3-BZ#29 | 113 | | - | | 40-140 | - | | 30 |
| CI4-BZ#50 | 112 | | - | | 40-140 | - | | 30 |
| CI3-BZ#31 | 123 | | - | | 40-140 | - | | 30 |
| CI3-BZ#28 | 113 | | - | | 40-140 | - | | 30 |
| CI4-BZ#45 | 129 | | - | | 40-140 | - | | 30 |
| CI4-BZ#52 | 114 | | - | | 40-140 | - | | 30 |
| CI4-BZ#49 | 119 | | - | | 40-140 | - | | 30 |
| CI5-BZ#104 | 132 | | - | | 40-140 | - | | 30 |
| CI4-BZ#47 | 111 | | - | | 40-140 | - | | 30 |
| CI4-BZ#44 | 115 | | - | | 40-140 | - | | 30 |
| CI3-BZ#37 | 69 | | - | | 40-140 | - | | 30 |
| CI5-BZ#121/#95/#88 | 94 | | - | | 40-140 | - | | 30 |
| CI4-BZ#74 | 104 | | - | | 40-140 | - | | 30 |

Lab Control Sample Analysis Batch Quality Control

Project Name: 19374

Project Number: 19374

Lab Number: L1417001

Report Date: 08/04/14

| Parameter | LCS %Recovery | Qual | LCSD %Recovery | Qual | %Recovery Limits | RPD | Qual | RPD Limits |
|--------------------------------------------------------------------------------------------------|------------------|------|-------------------|------|---------------------|-----|------|---------------|
| PCB Homologs by GC/MS-SIM (LowVol) - Mansfield Lab Associated sample(s): 01-08 Batch: WG709972-2 | | | | | | | | |
| Cl6-BZ#155 | 111 | | - | | 40-140 | - | | 30 |
| Cl4-BZ#70 | 104 | | - | | 40-140 | - | | 30 |
| Cl4-BZ#66 | 115 | | - | | 40-140 | - | | 30 |
| Cl5-BZ#101/#90 | 108 | | - | | 40-140 | - | | 30 |
| Cl4-BZ#56 | 108 | | - | | 40-140 | - | | 30 |
| Cl5-BZ#99 | 108 | | - | | 40-140 | - | | 30 |
| Cl5-BZ#87/#111 | 90 | | - | | 40-140 | - | | 30 |
| Cl6-BZ#154 | 107 | | - | | 40-140 | - | | 30 |
| Cl5-BZ#110 | 112 | | - | | 40-140 | - | | 30 |
| Cl4-BZ#81 | 102 | | - | | 40-140 | - | | 30 |
| Cl6-BZ#151 | 112 | | - | | 40-140 | - | | 30 |
| Cl6-BZ#147/#149 | 122 | | - | | 40-140 | - | | 30 |
| Cl4-BZ#77 | 117 | | - | | 40-140 | - | | 30 |
| Cl5-BZ#107/#123 | 130 | | - | | 40-140 | - | | 30 |
| Cl7-BZ#188 | 106 | | - | | 40-140 | - | | 30 |
| Cl5-BZ#118 | 103 | | - | | 40-140 | - | | 30 |
| Cl6-BZ#146 | 100 | | - | | 40-140 | - | | 30 |
| Cl5-BZ#114 | 110 | | - | | 40-140 | - | | 30 |
| Cl6-BZ#153 | 125 | | - | | 40-140 | - | | 30 |
| Cl5-BZ#105 | 84 | | - | | 40-140 | - | | 30 |
| Cl6-BZ#138 | 101 | | - | | 40-140 | - | | 30 |

Lab Control Sample Analysis Batch Quality Control

Project Name: 19374

Project Number: 19374

Lab Number: L1417001

Report Date: 08/04/14

| Parameter | LCS %Recovery | Qual | LCSD %Recovery | Qual | %Recovery Limits | RPD | Qual | RPD Limits |
|--------------------------------------------------------------------------------------------------|------------------|------|-------------------|------|---------------------|-----|------|---------------|
| PCB Homologs by GC/MS-SIM (LowVol) - Mansfield Lab Associated sample(s): 01-08 Batch: WG709972-2 | | | | | | | | |
| Cl6-BZ#129/#158 | 129 | | - | | 40-140 | - | | 30 |
| Cl7-BZ#187 | 114 | | - | | 40-140 | - | | 30 |
| Cl7-BZ#183 | 114 | | - | | 40-140 | - | | 30 |
| Cl5-BZ#126 | 70 | | - | | 40-140 | - | | 30 |
| Cl7-BZ#174 | 115 | | - | | 40-140 | - | | 30 |
| Cl6-BZ#128 | 110 | | - | | 40-140 | - | | 30 |
| Cl6-BZ#167 | 128 | | - | | 40-140 | - | | 30 |
| Cl8-BZ#202 | 131 | | - | | 40-140 | - | | 30 |
| Cl7-BZ#177 | 106 | | - | | 40-140 | - | | 30 |
| Cl8-BZ#204/#200-CAL | 112 | | - | | 40-140 | - | | 30 |
| Cl6-BZ#156 | 106 | | - | | 40-140 | - | | 30 |
| Cl6-BZ#157 | 110 | | - | | 40-140 | - | | 30 |
| Cl7-BZ#180 | 104 | | - | | 40-140 | - | | 30 |
| Cl8-BZ#201 | 110 | | - | | 40-140 | - | | 30 |
| Cl7-BZ#170 | 110 | | - | | 40-140 | - | | 30 |
| Cl6-BZ#169 | 89 | | - | | 40-140 | - | | 30 |
| Cl9-BZ#208 | 107 | | - | | 40-140 | - | | 30 |
| Cl7-BZ#189 | 106 | | - | | 40-140 | - | | 30 |
| Cl8-BZ#195 | 100 | | - | | 40-140 | - | | 30 |
| Cl8-BZ#194 | 98 | | - | | 40-140 | - | | 30 |
| Cl8-BZ#205 | 98 | | - | | 40-140 | - | | 30 |

Lab Control Sample Analysis Batch Quality Control

Project Name: 19374

Project Number: 19374

Lab Number: L1417001

Report Date: 08/04/14

| Parameter | LCS %Recovery | Qual | LCSD %Recovery | Qual | %Recovery Limits | RPD | Qual | RPD Limits |
|--------------------------------------------------------------------------------------------------|------------------|------|-------------------|------|---------------------|-----|------|---------------|
| PCB Homologs by GC/MS-SIM (LowVol) - Mansfield Lab Associated sample(s): 01-08 Batch: WG709972-2 | | | | | | | | |
| CI9-BZ#206 | 95 | | - | | 40-140 | - | | 30 |
| CI10-BZ#209 | 104 | | - | | 40-140 | - | | 30 |

| Surrogate | LCS %Recovery | Qual | LCSD %Recovery | Qual | Acceptance Criteria |
|----------------|------------------|------|-------------------|------|------------------------|
| CI3-BZ#19-C13 | 108 | | | | 50-125 |
| CI8-BZ#202-C13 | 105 | | | | 50-125 |

Project Name: 19374

Lab Number: L1417001

Project Number: 19374

Report Date: 08/04/14

Sample Receipt and Container Information

Were project specific reporting limits specified?

YES

Reagent H2O Preserved Vials Frozen on: NA

Cooler Information Custody Seal

Cooler

A

Absent

Container Information

| Container ID | Container Type | Cooler | pH | Temp deg C | Pres | Seal | Analysis(*) |
|--------------|-------------------------------|--------|-----|---------------|------|--------|------------------------|
| L1417001-01A | PUF Air Cartridge (PCB) - Low | A | N/A | 2.9 | Y | Absent | A2-PCBHOMS-8270SIML(7) |
| L1417001-02A | PUF Air Cartridge (PCB) - Low | A | N/A | 2.9 | Y | Absent | A2-PCBHOMS-8270SIML(7) |
| L1417001-03A | PUF Air Cartridge (PCB) - Low | A | N/A | 2.9 | Y | Absent | A2-PCBHOMS-8270SIML(7) |
| L1417001-04A | PUF Air Cartridge (PCB) - Low | A | N/A | 2.9 | Y | Absent | A2-PCBHOMS-8270SIML(7) |
| L1417001-05A | PUF Air Cartridge (PCB) - Low | A | N/A | 2.9 | Y | Absent | A2-PCBHOMS-8270SIML(7) |
| L1417001-06A | PUF Air Cartridge (PCB) - Low | A | N/A | 2.9 | Y | Absent | A2-PCBHOMS-8270SIML(7) |
| L1417001-07A | PUF Air Cartridge (PCB) - Low | A | N/A | 2.9 | Y | Absent | A2-PCBHOMS-8270SIML(7) |
| L1417001-08A | PUF Air Cartridge (PCB) - Low | A | N/A | 2.9 | Y | Absent | A2-PCBHOMS-8270SIML(7) |

*Values in parentheses indicate holding time in days



Project Name: 19374

Lab Number: L1417001

Project Number: 19374

Report Date: 08/04/14

GLOSSARY

Acronyms

| | |
|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EDL | - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME). |
| EPA | - Environmental Protection Agency. |
| LCS | - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes. |
| LCS D | - Laboratory Control Sample Duplicate: Refer to LCS. |
| LFB | - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes. |
| MDL | - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. |
| MS | - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. |
| MS D | - Matrix Spike Sample Duplicate: Refer to MS. |
| NA | - Not Applicable. |
| NC | - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit. |
| NI | - Not Ignitable. |
| RL | - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable. |
| RPD | - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report. |
| SRM | - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples. |

Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensation Product".
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit.
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.

Report Format: Data Usability Report



Project Name: 19374

Lab Number: L1417001

Project Number: 19374

Report Date: 08/04/14

Data Qualifiers

- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- J** - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- ND** - Not detected at the reporting limit (RL) for the sample.

Report Format: Data Usability Report



Project Name: 19374

Lab Number: L1417001

Project Number: 19374

Report Date: 08/04/14

REFERENCES

- 105 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IIIA, 1997 in conjunction with NOAA Technical Memorandum NMFS-NWFSC-59: Extraction, Cleanup and GC/MS Analysis of Sediments and Tissues for Organic Contaminants, March 2004 and the Determination of Pesticides and PCBs in Water and Oil/Sediment by GC/MS: Method 680, EPA 01A0005295, November 1985.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Certification Information

Last revised April 15, 2014

The following analytes are not included in our NELAP Scope of Accreditation:

Westborough Facility

EPA 524.2: Acetone, 2-Butanone (Methyl ethyl ketone (MEK)), Tert-butyl alcohol, 2-Hexanone, Tetrahydrofuran, 1,3,5-Trichlorobenzene, 4-Methyl-2-pentanone (MIBK), Carbon disulfide, Diethyl ether.

EPA 8260C: 1,2,4,5-Tetramethylbenzene, 4-Ethyltoluene, Iodomethane (methyl iodide), Methyl methacrylate, Azobenzene.

EPA 8330A/B: PETN, Picric Acid, Nitroglycerine, 2,6-DANT, 2,4-DANT.

EPA 8270D: 1-Methylnaphthalene, Dimethylnaphthalene, 1,4-Diphenylhydrazine.

EPA 625: 4-Chloroaniline, 4-Methylphenol.

SM4500: Soil: Total Phosphorus, TKN, NO₂, NO₃.

EPA 9071: Total Petroleum Hydrocarbons, Oil & Grease.

Mansfield Facility

EPA 8270D: Biphenyl.

EPA 2540D: TSS

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

The following analytes are included in our Massachusetts DEP Scope of Accreditation, Westborough Facility:

Drinking Water

EPA 200.8: Sb,As,Ba,Be,Cd,Cr,Cu,Pb,Ni,Se,Tl; **EPA 200.7:** Ba,Be,Ca,Cd,Cr,Cu,Na; **EPA 245.1:** Mercury;

EPA 300.0: Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C,** **SM4500CN-CE,** **EPA 180.1,** **SM2130B,** **SM4500CI-D,** **SM2320B,** **SM2540C,** **SM4500H-B**

EPA 332: Perchlorate.

Microbiology: **SM9215B;** **SM9223-P/A,** **SM9223B-Colilert-QT,** **Enterolert-QT.**

Non-Potable Water

EPA 200.8: Al,Sb,As,Be,Cd,Cr,Cu,Pb,Mn,Ni,Se,Ag,Tl,Zn;

EPA 200.7: Al,Sb,As,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Mo,Ni,K,Se,Ag,Na,Sr,Ti,Tl,V,Zn;

EPA 245.1, **SM4500H,B,** **EPA 120.1,** **SM2510B,** **SM2540C,** **SM2340B,** **SM2320B,** **SM4500CL-E,** **SM4500F-BC,**

SM426C, **SM4500NH3-BH,** **EPA 350.1:** Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **SM4500NO3-F,**

EPA 353.2: Nitrate-N, **SM4500NH3-BC-NES,** **EPA 351.1,** **SM4500P-E,** **SM4500P-B,** **E,** **SM5220D,** **EPA 410.4,**

SM5210B, **SM5310C,** **SM4500CL-D,** **EPA 1664,** **SM14 510AC,** **EPA 420.1,** **SM4500-CN-CE,** **SM2540D.**

EPA 624: Volatile Halocarbons & Aromatics,

EPA 608: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

Microbiology: **SM9223B-Colilert-QT;** **Enterolert-QT,** **SM9222D-MF.**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY FORM

Serial_No: 080414203117001

DATE: 7/29/14

FROM: Environmental Health and Engineering, Inc.
117 Fourth Avenue
Needham, MA 02494-2725

TO: Alpha Analytical

Please send invoices to ATTN: Accounts Payable
Please send reports to ATTN: Data Coordinator

In all correspondence regarding this matter, please refer to EH&E Project # 19374

The cost of this analysis will be covered by EH&E Purchase Order #

For EH & E Data Coordinator - URGENT DATA ☐

| SAMPLE ID | SAMPLE TYPE | ANALYTICAL METHOD/NUMBER | OTHER: Time/Date/Vol. |
|-----------|-------------|--------------------------|-----------------------|
| 154897 | AIR | PcB Homolog Analysis | 1314.9L |
| 154898 | | | 1339.5 |
| 154899 | | | 1327.6 |
| 154900 | | | 1329.0 |
| 154901 | | | 1312.4 |
| 154902 | | | 1292.1 |
| 154903 | | | 1278.7 |
| 154904 | | | 1335.7 |
| 154905 | | | 1340.9 |
| 154906 | | | 1265.9 |
| 154907 | | | 0 |
| 154908 | | | 0 |
| | | | |
| | | | |
| | | | |
| | | | |

Special instructions:

- ☐ Standard turn around time ☐ Rush by _____ date/time
- ☐ Fax results 781-247-4305 ☒ Other Will call 7/30 morning
- ☐ RETURN SAMPLES ☒ Electronic transfer - datacoordinator@ehinc.com
- ☒ Additional report recipient twinegishi@ehinc.com

Each signatory please return one copy of this form to the above address

Relinquished by: [Signature] of Environmental Health & Engineering, Inc. Date: 7/29/14 via FedEx

Received by: [Signature] of (company name) Alpha Date: 7/30/14 11:00

Relinquished by: _____ of (company name) Date: _____

Received by: _____ of (company name) Date: _____

Relinquished by: _____ of (company name) Date: _____

Received by: _____ of (company name) Date: _____

Lab Data

Received by: _____ of Environmental Health & Engineering, Inc. Date: _____

Page 1 of 1

**Environmental
Health &
Engineering, Inc.**

CHAIN OF CUSTODY FORM

Serial_No: 08041424371001

DATE: 7/29/14

FROM: Environmental Health and Engineering, Inc.
117 Fourth Avenue
Needham, MA 02494-2725

TO: Alpha Analytical

Please send invoices to ATTN: Accounts Payable
Please send reports to ATTN: Data Coordinator

In all correspondence regarding this matter, please refer to EH&E Project # 19374

The cost of this analysis will be covered by EH&E Purchase Order # _____

For EH & E Data Coordinator - URGENT DATA ☐

| SAMPLE ID | SAMPLE TYPE | ANALYTICAL METHOD/NUMBER | OTHER: Time/Date/Vol. |
|-----------|-------------|--------------------------|-----------------------|
| 154897 | AIR | PcB Homolog Analysis | 1314.9L |
| 154898 | | | 1339.5 |
| 154899 | | | 1327.6 |
| 154900 | | | 1329.0 |
| 154901 | | | 1312.4 |
| 154902 | | | 1292.1 |
| 154903 | | | 1278.7 |
| 154904 | | | 1335.7 |
| 154905 | | | 1340.9 |
| 154906 | | | 1265.9 |
| 154907 | | | 0 |
| 154908 | | | 0 |
| | | | |
| | | | |
| | | | |
| | | | |

Special instructions:

☐ Standard turn around time

☐ Rush by _____ date/time

☒ Other Will call 7/30 morning

☐ Fax results 781-247-4305

☐ RETURN SAMPLES

☒ Electronic transfer - datacoordinator@ehinc.com

☒ Additional report recipient tminegishi@ehinc.com

Each signatory please return one copy of this form to the above address

Relinquished by: [Signature] of Environmental Health & Engineering, Inc.

Date: 7/29/14

Received by: [Signature] of (company name) Alpha

Date: 7/30/14 11:00

Relinquished by: _____ of (company name) _____

Date: _____

Received by: _____ of (company name) _____

Date: _____

Relinquished by: _____ of (company name) _____

Date: _____

Received by: _____ of (company name) _____

Date: _____

Lab Data

Received by: _____ of Environmental Health & Engineering, Inc.

Date: _____

Page 1 of 1

APPENDIX D
WIPE SAMPLE LABORATORY REPORT



ANALYTICAL REPORT

| | |
|-----------------|--------------------------------------------------------------------------------|
| Lab Number: | L1417106 |
| Client: | Environmental Health & Engineering Inc. 117 Fourth Ave Needham, MA 02494 |
| ATTN: | Taeko Minegishi |
| Phone: | (781) 247-4300 |
| Project Name: | Not Specified |
| Project Number: | 19374 |
| Report Date: | 08/07/14 |

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NY (11148), CT (PH-0574), NH (2003), NJ NELAP (MA935), RI (LAO00065), ME (MA00086), PA (68-03671), USDA (Permit #P-330-11-00240), NC (666), TX (T104704476), DOD (L2217), US Army Corps of Engineers.

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: Not Specified
Project Number: 19374

Lab Number: L1417106
Report Date: 08/07/14

| Alpha Sample ID | Client ID | Matrix | Sample Location | Collection Date/Time | Receive Date |
|----------------------------|------------------|---------------|----------------------------|---------------------------------|---------------------|
| L1417106-01 | 154909 | WIPE | Not Specified | 07/30/14 00:00 | 07/31/14 |
| L1417106-02 | 154911 | WIPE | Not Specified | 07/30/14 00:00 | 07/31/14 |
| L1417106-03 | 154912 | WIPE | Not Specified | 07/30/14 00:00 | 07/31/14 |
| L1417106-04 | 154913 | WIPE | Not Specified | 07/30/14 00:00 | 07/31/14 |
| L1417106-05 | 154914 | WIPE | Not Specified | 07/30/14 00:00 | 07/31/14 |
| L1417106-06 | 154915 | WIPE | Not Specified | 07/30/14 00:00 | 07/31/14 |
| L1417106-07 | 154916 | WIPE | Not Specified | 07/30/14 00:00 | 07/31/14 |
| L1417106-08 | 154917 | WIPE | Not Specified | 07/30/14 00:00 | 07/31/14 |
| L1417106-09 | 154918 | WIPE | Not Specified | 07/30/14 00:00 | 07/31/14 |
| L1417106-10 | 154919 | WIPE | Not Specified | 07/30/14 00:00 | 07/31/14 |
| L1417106-11 | 154920 | WIPE | Not Specified | 07/30/14 00:00 | 07/31/14 |
| L1417106-12 | 154921 | WIPE | Not Specified | 07/30/14 00:00 | 07/31/14 |
| L1417106-13 | 154922 | WIPE | Not Specified | 07/30/14 00:00 | 07/31/14 |
| L1417106-14 | 154910 | WIPE | Not Specified | 07/30/14 00:00 | 07/31/14 |

Project Name: Not Specified
Project Number: 19374

Lab Number: L1417106
Report Date: 08/07/14

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Performance criteria for CAM and RCP methods allow for some LCS compound failures to occur and still be within method compliance. In these instances, the specific failures are not narrated but are noted in the associated QC table. This information is also incorporated in the Data Usability format for our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEX data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Project Name: Not Specified
Project Number: 19374

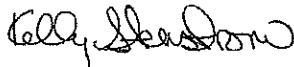
Lab Number: L1417106
Report Date: 08/07/14

Case Narrative (continued)**PCBs**

The WG710449-1 Method Blank, associated with L1417106-01 through -14, has a concentration above the reporting limit for aroclor 1254. Since the samples were non-detect for this target analyte, no further actions were taken. The results of the original analysis are reported.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:



Kelly Stenstrom

Title: Technical Director/Representative

Date: 08/07/14

ORGANICS

PCBS

Project Name: Not Specified

Lab Number: L1417106

Project Number: 19374

Report Date: 08/07/14

SAMPLE RESULTS

Lab ID: L1417106-01
 Client ID: 154909
 Sample Location: Not Specified
 Matrix: Wipe
 Analytical Method: 1,8082A
 Analytical Date: 08/04/14 12:02
 Analyst: JT

Date Collected: 07/30/14 00:00
 Date Received: 07/31/14
 Field Prep: Not Specified
 Extraction Method: EPA 3540C
 Extraction Date: 08/01/14 01:22
 Cleanup Method: EPA 3665A
 Cleanup Date: 08/02/14
 Cleanup Method: EPA 3660B
 Cleanup Date: 08/02/14

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor | Column |
|-----------------------------|--------|-----------|--------|-------|-----|-----------------|--------|
| PCB by GC - Westborough Lab | | | | | | | |
| Aroclor 1016 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1221 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1232 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1242 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1248 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1254 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1260 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1262 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1268 | ND | | ug Abs | 0.500 | -- | 1 | A |
| PCBs, Total | ND | | ug Abs | 0.500 | -- | 1 | A |

| Surrogate | % Recovery | Qualifier | Acceptance Criteria | Column |
|------------------------------|------------|-----------|---------------------|--------|
| 2,4,5,6-Tetrachloro-m-xylene | 53 | | 30-150 | A |
| Decachlorobiphenyl | 55 | | 30-150 | A |
| 2,4,5,6-Tetrachloro-m-xylene | 53 | | 30-150 | B |
| Decachlorobiphenyl | 68 | | 30-150 | B |



Project Name: Not Specified

Lab Number: L1417106

Project Number: 19374

Report Date: 08/07/14

SAMPLE RESULTS

Lab ID: L1417106-02
 Client ID: 154911
 Sample Location: Not Specified
 Matrix: Wipe
 Analytical Method: 1,8082A
 Analytical Date: 08/04/14 12:15
 Analyst: JT

Date Collected: 07/30/14 00:00
 Date Received: 07/31/14
 Field Prep: Not Specified
 Extraction Method: EPA 3540C
 Extraction Date: 08/01/14 01:22
 Cleanup Method: EPA 3665A
 Cleanup Date: 08/02/14
 Cleanup Method: EPA 3660B
 Cleanup Date: 08/02/14

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor | Column |
|-----------------------------|--------|-----------|--------|-------|-----|-----------------|--------|
| PCB by GC - Westborough Lab | | | | | | | |
| Aroclor 1016 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1221 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1232 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1242 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1248 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1254 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1260 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1262 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1268 | ND | | ug Abs | 0.500 | -- | 1 | A |
| PCBs, Total | ND | | ug Abs | 0.500 | -- | 1 | A |

| Surrogate | % Recovery | Qualifier | Acceptance Criteria | Column |
|------------------------------|------------|-----------|---------------------|--------|
| 2,4,5,6-Tetrachloro-m-xylene | 58 | | 30-150 | A |
| Decachlorobiphenyl | 52 | | 30-150 | A |
| 2,4,5,6-Tetrachloro-m-xylene | 62 | | 30-150 | B |
| Decachlorobiphenyl | 67 | | 30-150 | B |

Project Name: Not Specified

Lab Number: L1417106

Project Number: 19374

Report Date: 08/07/14

SAMPLE RESULTS

Lab ID: L1417106-03
 Client ID: 154912
 Sample Location: Not Specified
 Matrix: Wipe
 Analytical Method: 1,8082A
 Analytical Date: 08/04/14 12:28
 Analyst: JT

Date Collected: 07/30/14 00:00
 Date Received: 07/31/14
 Field Prep: Not Specified
 Extraction Method: EPA 3540C
 Extraction Date: 08/01/14 01:22
 Cleanup Method: EPA 3665A
 Cleanup Date: 08/02/14
 Cleanup Method: EPA 3660B
 Cleanup Date: 08/02/14

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor | Column |
|-----------------------------|--------|-----------|--------|-------|-----|-----------------|--------|
| PCB by GC - Westborough Lab | | | | | | | |
| Aroclor 1016 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1221 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1232 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1242 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1248 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1254 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1260 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1262 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1268 | ND | | ug Abs | 0.500 | -- | 1 | A |
| PCBs, Total | ND | | ug Abs | 0.500 | -- | 1 | A |

| Surrogate | % Recovery | Qualifier | Acceptance Criteria | Column |
|------------------------------|------------|-----------|---------------------|--------|
| 2,4,5,6-Tetrachloro-m-xylene | 56 | | 30-150 | A |
| Decachlorobiphenyl | 52 | | 30-150 | A |
| 2,4,5,6-Tetrachloro-m-xylene | 60 | | 30-150 | B |
| Decachlorobiphenyl | 64 | | 30-150 | B |

Project Name: Not Specified

Lab Number: L1417106

Project Number: 19374

Report Date: 08/07/14

SAMPLE RESULTS

Lab ID: L1417106-04
 Client ID: 154913
 Sample Location: Not Specified
 Matrix: Wipe
 Analytical Method: 1,8082A
 Analytical Date: 08/04/14 12:42
 Analyst: JT

Date Collected: 07/30/14 00:00
 Date Received: 07/31/14
 Field Prep: Not Specified
 Extraction Method: EPA 3540C
 Extraction Date: 08/01/14 01:22
 Cleanup Method: EPA 3665A
 Cleanup Date: 08/02/14
 Cleanup Method: EPA 3660B
 Cleanup Date: 08/02/14

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor | Column |
|-----------------------------|--------|-----------|--------|-------|-----|-----------------|--------|
| PCB by GC - Westborough Lab | | | | | | | |
| Aroclor 1016 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1221 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1232 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1242 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1248 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1254 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1260 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1262 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1268 | ND | | ug Abs | 0.500 | -- | 1 | A |
| PCBs, Total | ND | | ug Abs | 0.500 | -- | 1 | A |

| Surrogate | % Recovery | Qualifier | Acceptance Criteria | Column |
|------------------------------|------------|-----------|---------------------|--------|
| 2,4,5,6-Tetrachloro-m-xylene | 57 | | 30-150 | A |
| Decachlorobiphenyl | 55 | | 30-150 | A |
| 2,4,5,6-Tetrachloro-m-xylene | 58 | | 30-150 | B |
| Decachlorobiphenyl | 64 | | 30-150 | B |

Project Name: Not Specified

Lab Number: L1417106

Project Number: 19374

Report Date: 08/07/14

SAMPLE RESULTS

Lab ID: L1417106-05
 Client ID: 154914
 Sample Location: Not Specified
 Matrix: Wipe
 Analytical Method: 1,8082A
 Analytical Date: 08/04/14 12:55
 Analyst: JT

Date Collected: 07/30/14 00:00
 Date Received: 07/31/14
 Field Prep: Not Specified
 Extraction Method: EPA 3540C
 Extraction Date: 08/01/14 01:22
 Cleanup Method: EPA 3665A
 Cleanup Date: 08/02/14
 Cleanup Method: EPA 3660B
 Cleanup Date: 08/02/14

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor | Column |
|-----------------------------|--------|-----------|--------|-------|-----|-----------------|--------|
| PCB by GC - Westborough Lab | | | | | | | |
| Aroclor 1016 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1221 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1232 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1242 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1248 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1254 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1260 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1262 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1268 | ND | | ug Abs | 0.500 | -- | 1 | A |
| PCBs, Total | ND | | ug Abs | 0.500 | -- | 1 | A |

| Surrogate | % Recovery | Qualifier | Acceptance Criteria | Column |
|------------------------------|------------|-----------|---------------------|--------|
| 2,4,5,6-Tetrachloro-m-xylene | 71 | | 30-150 | A |
| Decachlorobiphenyl | 78 | | 30-150 | A |
| 2,4,5,6-Tetrachloro-m-xylene | 66 | | 30-150 | B |
| Decachlorobiphenyl | 82 | | 30-150 | B |

Project Name: Not Specified

Lab Number: L1417106

Project Number: 19374

Report Date: 08/07/14

SAMPLE RESULTS

Lab ID: L1417106-06
 Client ID: 154915
 Sample Location: Not Specified
 Matrix: Wipe
 Analytical Method: 1,8082A
 Analytical Date: 08/04/14 13:08
 Analyst: JT

Date Collected: 07/30/14 00:00
 Date Received: 07/31/14
 Field Prep: Not Specified
 Extraction Method: EPA 3540C
 Extraction Date: 08/01/14 01:22
 Cleanup Method: EPA 3665A
 Cleanup Date: 08/02/14
 Cleanup Method: EPA 3660B
 Cleanup Date: 08/02/14

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor | Column |
|-----------------------------|--------|-----------|--------|-------|-----|-----------------|--------|
| PCB by GC - Westborough Lab | | | | | | | |
| Aroclor 1016 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1221 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1232 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1242 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1248 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1254 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1260 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1262 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1268 | ND | | ug Abs | 0.500 | -- | 1 | A |
| PCBs, Total | ND | | ug Abs | 0.500 | -- | 1 | A |

| Surrogate | % Recovery | Qualifier | Acceptance Criteria | Column |
|------------------------------|------------|-----------|---------------------|--------|
| 2,4,5,6-Tetrachloro-m-xylene | 62 | | 30-150 | A |
| Decachlorobiphenyl | 61 | | 30-150 | A |
| 2,4,5,6-Tetrachloro-m-xylene | 65 | | 30-150 | B |
| Decachlorobiphenyl | 74 | | 30-150 | B |

Project Name: Not Specified

Lab Number: L1417106

Project Number: 19374

Report Date: 08/07/14

SAMPLE RESULTS

Lab ID: L1417106-07
 Client ID: 154916
 Sample Location: Not Specified
 Matrix: Wipe
 Analytical Method: 1,8082A
 Analytical Date: 08/04/14 13:22
 Analyst: JT

Date Collected: 07/30/14 00:00
 Date Received: 07/31/14
 Field Prep: Not Specified
 Extraction Method: EPA 3540C
 Extraction Date: 08/01/14 01:22
 Cleanup Method: EPA 3665A
 Cleanup Date: 08/02/14
 Cleanup Method: EPA 3660B
 Cleanup Date: 08/02/14

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor | Column |
|-----------------------------|--------|-----------|--------|-------|-----|-----------------|--------|
| PCB by GC - Westborough Lab | | | | | | | |
| Aroclor 1016 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1221 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1232 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1242 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1248 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1254 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1260 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1262 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1268 | ND | | ug Abs | 0.500 | -- | 1 | A |
| PCBs, Total | ND | | ug Abs | 0.500 | -- | 1 | A |

| Surrogate | % Recovery | Qualifier | Acceptance Criteria | Column |
|------------------------------|------------|-----------|---------------------|--------|
| 2,4,5,6-Tetrachloro-m-xylene | 63 | | 30-150 | A |
| Decachlorobiphenyl | 62 | | 30-150 | A |
| 2,4,5,6-Tetrachloro-m-xylene | 67 | | 30-150 | B |
| Decachlorobiphenyl | 75 | | 30-150 | B |

Project Name: Not Specified

Lab Number: L1417106

Project Number: 19374

Report Date: 08/07/14

SAMPLE RESULTS

Lab ID: L1417106-08
 Client ID: 154917
 Sample Location: Not Specified
 Matrix: Wipe
 Analytical Method: 1,8082A
 Analytical Date: 08/04/14 13:35
 Analyst: JT

Date Collected: 07/30/14 00:00
 Date Received: 07/31/14
 Field Prep: Not Specified
 Extraction Method: EPA 3540C
 Extraction Date: 08/01/14 01:22
 Cleanup Method: EPA 3665A
 Cleanup Date: 08/02/14
 Cleanup Method: EPA 3660B
 Cleanup Date: 08/02/14

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor | Column |
|-----------------------------|--------|-----------|--------|-------|-----|-----------------|--------|
| PCB by GC - Westborough Lab | | | | | | | |
| Aroclor 1016 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1221 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1232 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1242 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1248 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1254 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1260 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1262 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1268 | ND | | ug Abs | 0.500 | -- | 1 | A |
| PCBs, Total | ND | | ug Abs | 0.500 | -- | 1 | A |

| Surrogate | % Recovery | Qualifier | Acceptance Criteria | Column |
|------------------------------|------------|-----------|---------------------|--------|
| 2,4,5,6-Tetrachloro-m-xylene | 55 | | 30-150 | A |
| Decachlorobiphenyl | 62 | | 30-150 | A |
| 2,4,5,6-Tetrachloro-m-xylene | 59 | | 30-150 | B |
| Decachlorobiphenyl | 75 | | 30-150 | B |

Project Name: Not Specified

Lab Number: L1417106

Project Number: 19374

Report Date: 08/07/14

SAMPLE RESULTS

Lab ID: L1417106-09
 Client ID: 154918
 Sample Location: Not Specified
 Matrix: Wipe
 Analytical Method: 1,8082A
 Analytical Date: 08/04/14 13:48
 Analyst: JT

Date Collected: 07/30/14 00:00
 Date Received: 07/31/14
 Field Prep: Not Specified
 Extraction Method: EPA 3540C
 Extraction Date: 08/01/14 01:22
 Cleanup Method: EPA 3665A
 Cleanup Date: 08/02/14
 Cleanup Method: EPA 3660B
 Cleanup Date: 08/02/14

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor | Column |
|-----------------------------|--------|-----------|--------|-------|-----|-----------------|--------|
| PCB by GC - Westborough Lab | | | | | | | |
| Aroclor 1016 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1221 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1232 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1242 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1248 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1254 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1260 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1262 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1268 | ND | | ug Abs | 0.500 | -- | 1 | A |
| PCBs, Total | ND | | ug Abs | 0.500 | -- | 1 | A |

| Surrogate | % Recovery | Qualifier | Acceptance Criteria | Column |
|------------------------------|------------|-----------|---------------------|--------|
| 2,4,5,6-Tetrachloro-m-xylene | 43 | | 30-150 | A |
| Decachlorobiphenyl | 43 | | 30-150 | A |
| 2,4,5,6-Tetrachloro-m-xylene | 44 | | 30-150 | B |
| Decachlorobiphenyl | 51 | | 30-150 | B |

Project Name: Not Specified

Lab Number: L1417106

Project Number: 19374

Report Date: 08/07/14

SAMPLE RESULTS

Lab ID: L1417106-10
 Client ID: 154919
 Sample Location: Not Specified
 Matrix: Wipe
 Analytical Method: 1,8082A
 Analytical Date: 08/04/14 14:02
 Analyst: JT

Date Collected: 07/30/14 00:00
 Date Received: 07/31/14
 Field Prep: Not Specified
 Extraction Method: EPA 3540C
 Extraction Date: 08/01/14 01:22
 Cleanup Method: EPA 3665A
 Cleanup Date: 08/02/14
 Cleanup Method: EPA 3660B
 Cleanup Date: 08/02/14

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor | Column |
|-----------------------------|--------|-----------|--------|-------|-----|-----------------|--------|
| PCB by GC - Westborough Lab | | | | | | | |
| Aroclor 1016 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1221 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1232 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1242 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1248 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1254 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1260 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1262 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1268 | ND | | ug Abs | 0.500 | -- | 1 | A |
| PCBs, Total | ND | | ug Abs | 0.500 | -- | 1 | A |

| Surrogate | % Recovery | Qualifier | Acceptance Criteria | Column |
|------------------------------|------------|-----------|---------------------|--------|
| 2,4,5,6-Tetrachloro-m-xylene | 67 | | 30-150 | A |
| Decachlorobiphenyl | 73 | | 30-150 | A |
| 2,4,5,6-Tetrachloro-m-xylene | 63 | | 30-150 | B |
| Decachlorobiphenyl | 77 | | 30-150 | B |

Project Name: Not Specified
Project Number: 19374

Lab Number: L1417106
Report Date: 08/07/14

SAMPLE RESULTS

Lab ID: L1417106-11
Client ID: 154920
Sample Location: Not Specified
Matrix: Wipe
Analytical Method: 1,8082A
Analytical Date: 08/04/14 14:15
Analyst: JT

Date Collected: 07/30/14 00:00
Date Received: 07/31/14
Field Prep: Not Specified
Extraction Method: EPA 3540C
Extraction Date: 08/01/14 01:22
Cleanup Method: EPA 3665A
Cleanup Date: 08/02/14
Cleanup Method: EPA 3660B
Cleanup Date: 08/02/14

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor | Column |
|------------------------------------|--------|-----------|--------|-------|-----|-----------------|--------|
| PCB by GC - Westborough Lab | | | | | | | |
| Aroclor 1016 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1221 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1232 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1242 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1248 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1254 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1260 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1262 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1268 | ND | | ug Abs | 0.500 | -- | 1 | A |
| PCBs, Total | ND | | ug Abs | 0.500 | -- | 1 | A |

| Surrogate | % Recovery | Qualifier | Acceptance Criteria | Column |
|------------------------------|------------|-----------|---------------------|--------|
| 2,4,5,6-Tetrachloro-m-xylene | 64 | | 30-150 | A |
| Decachlorobiphenyl | 61 | | 30-150 | A |
| 2,4,5,6-Tetrachloro-m-xylene | 67 | | 30-150 | B |
| Decachlorobiphenyl | 74 | | 30-150 | B |

Project Name: Not Specified

Lab Number: L1417106

Project Number: 19374

Report Date: 08/07/14

SAMPLE RESULTS

Lab ID: L1417106-12
 Client ID: 154921
 Sample Location: Not Specified
 Matrix: Wipe
 Analytical Method: 1,8082A
 Analytical Date: 08/04/14 14:28
 Analyst: JT

Date Collected: 07/30/14 00:00
 Date Received: 07/31/14
 Field Prep: Not Specified
 Extraction Method: EPA 3540C
 Extraction Date: 08/01/14 01:22
 Cleanup Method: EPA 3665A
 Cleanup Date: 08/02/14
 Cleanup Method: EPA 3660B
 Cleanup Date: 08/02/14

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor | Column |
|-----------------------------|--------|-----------|--------|-------|-----|-----------------|--------|
| PCB by GC - Westborough Lab | | | | | | | |
| Aroclor 1016 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1221 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1232 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1242 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1248 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1254 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1260 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1262 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1268 | ND | | ug Abs | 0.500 | -- | 1 | A |
| PCBs, Total | ND | | ug Abs | 0.500 | -- | 1 | A |

| Surrogate | % Recovery | Qualifier | Acceptance Criteria | Column |
|------------------------------|------------|-----------|---------------------|--------|
| 2,4,5,6-Tetrachloro-m-xylene | 59 | | 30-150 | A |
| Decachlorobiphenyl | 63 | | 30-150 | A |
| 2,4,5,6-Tetrachloro-m-xylene | 64 | | 30-150 | B |
| Decachlorobiphenyl | 78 | | 30-150 | B |

Project Name: Not Specified

Lab Number: L1417106

Project Number: 19374

Report Date: 08/07/14

SAMPLE RESULTS

Lab ID: L1417106-13
 Client ID: 154922
 Sample Location: Not Specified
 Matrix: Wipe
 Analytical Method: 1,8082A
 Analytical Date: 08/04/14 14:42
 Analyst: JT

Date Collected: 07/30/14 00:00
 Date Received: 07/31/14
 Field Prep: Not Specified
 Extraction Method: EPA 3540C
 Extraction Date: 08/01/14 01:22
 Cleanup Method: EPA 3665A
 Cleanup Date: 08/02/14
 Cleanup Method: EPA 3660B
 Cleanup Date: 08/02/14

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor | Column |
|-----------------------------|--------|-----------|--------|-------|-----|-----------------|--------|
| PCB by GC - Westborough Lab | | | | | | | |
| Aroclor 1016 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1221 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1232 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1242 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1248 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1254 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1260 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1262 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1268 | ND | | ug Abs | 0.500 | -- | 1 | A |
| PCBs, Total | ND | | ug Abs | 0.500 | -- | 1 | A |

| Surrogate | % Recovery | Qualifier | Acceptance Criteria | Column |
|------------------------------|------------|-----------|---------------------|--------|
| 2,4,5,6-Tetrachloro-m-xylene | 57 | | 30-150 | A |
| Decachlorobiphenyl | 60 | | 30-150 | A |
| 2,4,5,6-Tetrachloro-m-xylene | 59 | | 30-150 | B |
| Decachlorobiphenyl | 72 | | 30-150 | B |

Project Name: Not Specified

Lab Number: L1417106

Project Number: 19374

Report Date: 08/07/14

SAMPLE RESULTS

Lab ID: L1417106-14
 Client ID: 154910
 Sample Location: Not Specified
 Matrix: Wipe
 Analytical Method: 1,8082A
 Analytical Date: 08/04/14 14:55
 Analyst: JT

Date Collected: 07/30/14 00:00
 Date Received: 07/31/14
 Field Prep: Not Specified
 Extraction Method: EPA 3540C
 Extraction Date: 08/01/14 01:22
 Cleanup Method: EPA 3665A
 Cleanup Date: 08/02/14
 Cleanup Method: EPA 3660B
 Cleanup Date: 08/02/14

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor | Column |
|-----------------------------|--------|-----------|--------|-------|-----|-----------------|--------|
| PCB by GC - Westborough Lab | | | | | | | |
| Aroclor 1016 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1221 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1232 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1242 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1248 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1254 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1260 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1262 | ND | | ug Abs | 0.500 | -- | 1 | A |
| Aroclor 1268 | ND | | ug Abs | 0.500 | -- | 1 | A |
| PCBs, Total | ND | | ug Abs | 0.500 | -- | 1 | A |

| Surrogate | % Recovery | Qualifier | Acceptance Criteria | Column |
|------------------------------|------------|-----------|---------------------|--------|
| 2,4,5,6-Tetrachloro-m-xylene | 66 | | 30-150 | A |
| Decachlorobiphenyl | 58 | | 30-150 | A |
| 2,4,5,6-Tetrachloro-m-xylene | 69 | | 30-150 | B |
| Decachlorobiphenyl | 68 | | 30-150 | B |

Project Name: Not Specified

Lab Number: L1417106

Project Number: 19374

Report Date: 08/07/14

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8082A
 Analytical Date: 08/04/14 15:08
 Analyst: JT

Extraction Method: EPA 3540C
 Extraction Date: 08/01/14 01:22
 Cleanup Method: EPA 3665A
 Cleanup Date: 08/02/14
 Cleanup Method: EPA 3660B
 Cleanup Date: 08/02/14

| Parameter | Result | Qualifier | Units | RL | MDL | Column |
|--------------------------------------------------------------------|--------|-----------|--------|-------|-----|--------|
| PCB by GC - Westborough Lab for sample(s): 01-14 Batch: WG710449-1 | | | | | | |
| Aroclor 1016 | ND | | ug Abs | 0.500 | -- | A |
| Aroclor 1221 | ND | | ug Abs | 0.500 | -- | A |
| Aroclor 1232 | ND | | ug Abs | 0.500 | -- | A |
| Aroclor 1242 | ND | | ug Abs | 0.500 | -- | A |
| Aroclor 1248 | ND | | ug Abs | 0.500 | -- | A |
| Aroclor 1260 | ND | | ug Abs | 0.500 | -- | A |
| Aroclor 1262 | ND | | ug Abs | 0.500 | -- | A |
| Aroclor 1268 | ND | | ug Abs | 0.500 | -- | A |
| PCBs, Total | 0.765 | | ug Abs | 0.500 | -- | A |
| Aroclor 1254 | 0.765 | | ug Abs | 0.500 | -- | B |

| Surrogate | %Recovery | Qualifier | Acceptance Criteria | Column |
|------------------------------|-----------|-----------|------------------------|--------|
| 2,4,5,6-Tetrachloro-m-xylene | 57 | | 30-150 | A |
| Decachlorobiphenyl | 53 | | 30-150 | A |
| 2,4,5,6-Tetrachloro-m-xylene | 60 | | 30-150 | B |
| Decachlorobiphenyl | 67 | | 30-150 | B |

Lab Control Sample Analysis

Batch Quality Control

Project Name: Not Specified

Project Number: 19374

Lab Number: L1417106

Report Date: 08/07/14

| Parameter | LCS %Recovery | Qual | LCSD %Recovery | Qual | %Recovery Limits | RPD | Qual | RPD Limits | Column |
|--------------------------------------------------------------------------------------|------------------|------|-------------------|------|---------------------|-----|------|---------------|--------|
| PCB by GC - Westborough Lab Associated sample(s): 01-14 Batch: WG710449-2 WG710449-3 | | | | | | | | | |
| Aroclor 1016 | 66 | | 61 | | 40-140 | 8 | | 50 | A |
| Aroclor 1260 | 59 | | 55 | | 40-140 | 6 | | 50 | A |

| Surrogate | LCS %Recovery | Qual | LCSD %Recovery | Qual | Acceptance Criteria | Column |
|------------------------------|------------------|------|-------------------|------|------------------------|--------|
| 2,4,5,6-Tetrachloro-m-xylene | 67 | | 56 | | 30-150 | A |
| Decachlorobiphenyl | 62 | | 57 | | 30-150 | A |
| 2,4,5,6-Tetrachloro-m-xylene | 68 | | 58 | | 30-150 | B |
| Decachlorobiphenyl | 74 | | 72 | | 30-150 | B |

Project Name: Not Specified

Lab Number: L1417106

Project Number: 19374

Report Date: 08/07/14

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Reagent H2O Preserved Vials Frozen on: NA

Cooler Information Custody Seal

Cooler

A Absent

Container Information

| Container ID | Container Type | Cooler | pH | Temp deg C | Pres | Seal | Analysis(*) |
|--------------|------------------------------|--------|-----|---------------|------|--------|--------------------|
| L1417106-01A | Amber 100ml Hexane preserved | A | N/A | 4.4 | Y | Absent | PCB-8082-3540C(14) |
| L1417106-02A | Amber 100ml Hexane preserved | A | N/A | 4.4 | Y | Absent | PCB-8082-3540C(14) |
| L1417106-03A | Amber 100ml Hexane preserved | A | N/A | 4.4 | Y | Absent | PCB-8082-3540C(14) |
| L1417106-04A | Amber 100ml Hexane preserved | A | N/A | 4.4 | Y | Absent | PCB-8082-3540C(14) |
| L1417106-05A | Amber 100ml Hexane preserved | A | N/A | 4.4 | Y | Absent | PCB-8082-3540C(14) |
| L1417106-06A | Amber 100ml Hexane preserved | A | N/A | 4.4 | Y | Absent | PCB-8082-3540C(14) |
| L1417106-07A | Amber 100ml Hexane preserved | A | N/A | 4.4 | Y | Absent | PCB-8082-3540C(14) |
| L1417106-08A | Amber 100ml Hexane preserved | A | N/A | 4.4 | Y | Absent | PCB-8082-3540C(14) |
| L1417106-09A | Amber 100ml Hexane preserved | A | N/A | 4.4 | Y | Absent | PCB-8082-3540C(14) |
| L1417106-10A | Amber 100ml Hexane preserved | A | N/A | 4.4 | Y | Absent | PCB-8082-3540C(14) |
| L1417106-11A | Amber 100ml Hexane preserved | A | N/A | 4.4 | Y | Absent | PCB-8082-3540C(14) |
| L1417106-12A | Amber 100ml Hexane preserved | A | N/A | 4.4 | Y | Absent | PCB-8082-3540C(14) |
| L1417106-13A | Amber 100ml Hexane preserved | A | N/A | 4.4 | Y | Absent | PCB-8082-3540C(14) |
| L1417106-14A | Amber 100ml Hexane preserved | A | N/A | 4.4 | Y | Absent | PCB-8082-3540C(14) |

*Values in parentheses indicate holding time in days



Project Name: Not Specified

Lab Number: L1417106

Project Number: 19374

Report Date: 08/07/14

GLOSSARY

Acronyms

- EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
- EPA - Environmental Protection Agency.
- LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
- LCS D - Laboratory Control Sample Duplicate: Refer to LCS.
- LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
- MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
- MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
- MSD - Matrix Spike Sample Duplicate: Refer to MS.
- NA - Not Applicable.
- NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
- NI - Not Ignitable.
- RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
- RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
- SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Data Qualifiers

- A - Spectra identified as "Aldol Condensation Product".
- B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit.
- C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.

Report Format: Data Usability Report



Project Name: Not Specified**Lab Number:** L1417106**Project Number:** 19374**Report Date:** 08/07/14**Data Qualifiers**

- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- J** - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- ND** - Not detected at the reporting limit (RL) for the sample.

Report Format: Data Usability Report

Project Name: Not Specified
Project Number: 19374

Lab Number: L1417106
Report Date: 08/07/14

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Certification Information

Last revised April 15, 2014

The following analytes are not included in our NELAP Scope of Accreditation:

Westborough Facility

EPA 524.2: Acetone, 2-Butanone (Methyl ethyl ketone (MEK)), Tert-butyl alcohol, 2-Hexanone, Tetrahydrofuran, 1,3,5-Trichlorobenzene, 4-Methyl-2-pentanone (MIBK), Carbon disulfide, Diethyl ether.

EPA 8260C: 1,2,4,5-Tetramethylbenzene, 4-Ethyltoluene, Iodomethane (methyl iodide), Methyl methacrylate, Azobenzene.

EPA 8330A/B: PETN, Picric Acid, Nitroglycerine, 2,6-DANT, 2,4-DANT.

EPA 8270D: 1-Methylnaphthalene, Dimethylnaphthalene, 1,4-Diphenylhydrazine.

EPA 625: 4-Chloroaniline, 4-Methylphenol.

SM4500: Soil: Total Phosphorus, TKN, NO₂, NO₃.

EPA 9071: Total Petroleum Hydrocarbons, Oil & Grease.

Mansfield Facility

EPA 8270D: Biphenyl.

EPA 2540D: TSS

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

The following analytes are included in our Massachusetts DEP Scope of Accreditation, Westborough Facility:

Drinking Water

EPA 200.8: Sb,As,Ba,Be,Cd,Cr,Cu,Pb,Ni,Se,Tl; **EPA 200.7:** Ba,Be,Ca,Cd,Cr,Cu,Na; **EPA 245.1:** Mercury;

EPA 300.0: Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO₃-F:** Nitrate-N, Nitrite-N; **SM4500F-C,** **SM4500CN-CE,** **EPA 180.1,** **SM2130B,** **SM4500CI-D,** **SM2320B,** **SM2540C,** **SM4500H-B**

EPA 332: Perchlorate.

Microbiology: **SM9215B;** **SM9223-P/A,** **SM9223B-Colilert-QT,** **Enterolert-QT.**

Non-Potable Water

EPA 200.8: Al,Sb,As,Be,Cd,Cr,Cu,Pb,Mn,Ni,Se,Ag,Tl,Zn;

EPA 200.7: Al,Sb,As,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Mo,Ni,K,Se,Ag,Na,Sr,Ti,Tl,V,Zn;

EPA 245.1, **SM4500H,B,** **EPA 120.1,** **SM2510B,** **SM2540C,** **SM2340B,** **SM2320B,** **SM4500CL-E,** **SM4500F-BC,** **SM426C,** **SM4500NH₃-BH,** **EPA 350.1:** Ammonia-N, LACHAT 10-107-06-1-B: Ammonia-N, **SM4500NO₃-F,**

EPA 353.2: Nitrate-N, **SM4500NH₃-BC-NES,** **EPA 351.1,** **SM4500P-E,** **SM4500P-B, E,** **SM5220D,** **EPA 410.4,** **SM5210B,** **SM5310C,** **SM4500CL-D,** **EPA 1664,** **SM14 510AC,** **EPA 420.1,** **SM4500-CN-CE,** **SM2540D.**

EPA 624: Volatile Halocarbons & Aromatics,

EPA 608: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

Microbiology: **SM9223B-Colilert-QT;** **Enterolert-QT,** **SM9222D-MF.**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY FORM

Serial No: 08071414:28

DATE: 7/30/14

FROM: Environmental Health and Engineering, Inc.
117 Fourth Avenue
Needham, MA 02494-2725

TO: ALPHA ANALYTICAL

Please send invoices to ATTN: Accounts Payable
Please send reports to ATTN: Data Coordinator

In all correspondence regarding this matter, please refer to EH&E Project # 19374

The cost of this analysis will be covered by EH&E Purchase Order # _____

For EH & E Data Coordinator - URGENT DATA ☐

| SAMPLE ID | SAMPLE TYPE | ANALYTICAL METHOD/NUMBER | OTHER:Time/Date/Vol. |
|-----------|-------------|--------------------------|----------------------|
| 154909 | WIPE | EPA 8082 PCB | 7/30/14 |
| 154911 | | | 100cm ² |
| 154912 | | | 100cm ² |
| 154913 | | | |
| 154914 | | | |
| 154915 | | | |
| 154916 | | | |
| 154917 | | | |
| 154918 | | | |
| 154919 | | | |
| 154920 | | | |
| 154921 | | | |
| 154922 | | | |
| 154910 | | | |

Special instructions:

☒ Standard turn around time

☐ Rush by _____ date/time

☐ Other _____

☐ Fax results 781-247-4305

☐ RETURN SAMPLES

☒ Electronic transfer - datacoordinator@ehinc.com

☒ Additional report recipient tminezishi@ehinc.com

Each signatory please return one copy of this form to the above address

Relinquished by: [Signature] of Environmental Health & Engineering, Inc.

Date: 7/30/14

Received by: [Signature] of (company name) Alpha

Date: 7/31/14 9:22

Relinquished by: _____ of (company name) _____

Date: _____

Received by: _____ of (company name) _____

Date: _____

Relinquished by: _____ of (company name) _____

Date: _____

Received by: _____ of (company name) _____

Date: _____

Received by: _____ of Environmental Health & Engineering, Inc.

Date: _____

Page _____ of _____

APPENDIX E

QUALITY ASSURANCE/QUALITY CONTROL PLAN

SITE SPECIFIC CRITERIA

Potential exposure to airborne PCBs shall be controlled to as low as reasonably achievable, and in all cases comply with the public health levels of PCBs in school air provided by the U.S. Environmental Protection Agency (EPA) for elementary school (ages 6 to <12 years; 300 ng/m³; <http://www.epa.gov/epawaste/hazard/tsd/pcbs/pubs/caulk/pdf/maxconcentrations.pdf>). As the current levels in the school are below the EPA guideline, no further air sampling is proposed for this work.

Potential exposure to PCBs in surface dust shall be controlled to as low as reasonably achievable, and in all cases comply with criterion set forth by the EPA of 10 µg/100 cm² for occupied spaces as well as a more stringent criteria of 1 µg/100 cm² previously stipulated by the EPA Region 1 PCB Coordinator for similar work.

QUALITY ASSURANCE/QUALITY CONTROL

This section describes the quality assurance objectives, measurement criteria, and performance criteria that were/will be employed for this program. The selected analytical test methods for this project will have laboratory quantification limits that are lower than the established project action limits. A laboratory certification letter indicating compliance with the requirements of this plan will be provided under separate cover.

The ultimate objective of this project is to evaluate PCB concentrations in soil, as specified in this plan. The data collected must be of sound quality to support evaluation of site conditions.

The ability of the data to meet the project quality objectives shall be measured using data quality criteria, which include precision, accuracy, representativeness, comparability, completeness, and sensitivity parameters. Laboratory and field sampling activity documentation will be used to assess these parameters. In addition, only certified laboratories shall be used to ensure proper data handling techniques. The acceptance criteria and frequency of measurement of these parameters are summarized in Table E.1.

| Table E.1 Quality Assurance and Control for air and wipe samples | | | |
|-------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|------------------------------------------|
| Data Quality Indicators | Measurement Performance Criteria | QC Sample and/or Activity Used to Assess Measurement Performance | Frequency |
| Precision—Overall | ±45% | Field duplicates | Minimum: One per group or 20% of samples |
| Precision—Laboratory | ±45% | 1. Matrix spike 2. Matrix spike duplicates | Minimum: One per analysis. |
| Accuracy/Bias | ±45% | 1. Matrix spike 2. Matrix spike duplicates | Minimum: One per group |
| Accuracy/Bias | Acceptable quality control range based on analytical technique | Laboratory control samples | Double column GC Surrogate compound |
| Accuracy/Bias—Contamination | No target analytes above laboratory quantification limit with the exception of common field/laboratory contaminants | 1. Equipment blanks 2. Method blanks | Minimum: One per group |
| Comparability | Not applicable | Comparability check | Double column GC |
| Data completeness | 90% Overall | Data completeness check | One |
| Sensitivity | ±100% | Low calibration standard | Minimum: One |
| QC quality control GC gas chromatography | | | |

Surface samples will be analyzed using EPA Method 8082 with extraction performed by EPA Method 3540C. Quality assurance and quality control sampling will include one blank, one duplicate sample.

Precision

Precision is the degree of agreement among repeated measurements of the same characteristic under the same or similar conditions. In general, EH&E collects one duplicate sample for every ten samples collected or 20% of the sample size. No less than one duplicate set is collected, regardless of the sample size. The identity of the duplicate sample(s) is not revealed to the analytical laboratory. The target precision among field duplicates is ±45%, indicating good reproducibility. Because of the low possibility of residual PCBs in the collected samples, EH&E believes that a precision of 45% will be an acceptable indicator for reproducibility. Precision levels greater than 45% will not invalidate the sample data set but will be flagged to caution users about the variability within the data.

Accuracy

Accuracy is the extent of agreement between an observed value (sample result) and the accepted or true value of the parameter being measured. All field equipment are calibrated and maintained to minimize variability. EH&E also observes proper handling and packaging techniques to preserve the integrity of the samples. The appropriate laboratory QC program and analytical method determine acceptable recoveries. The laboratory utilizes spiked samples, reference standards, and blanks to assure accuracy. Recoveries outside the acceptable limits will not invalidate the sample data set; however, the data will be flagged to warn of its reliability.

Representativeness

Representativeness is a qualitative term that describes the extent to which a sampling design adequately reflects the environmental conditions of a site. The samples locations were/will be selected to represent the various field conditions and in the locations most likely to be impacted by building related PCBs.

Reasonableness

All data are evaluated for reasonableness based on existing knowledge of the Aroclor mixtures in building environments. Any data that substantially falls outside these expected levels will be further evaluated for accuracy and additional data collection may be required.

Completeness

Completeness is a measure (percentage) of the amount of valid data obtained meeting the data quality objectives. Valid data are data that are soundly founded as evidenced by the data quality indicators. The acceptable completeness percentage for this project is 90%.

APPENDIX F LIMITATIONS

1. Environmental Health & Engineering, Inc.'s (EH&E) indoor environmental quality assessment described in the attached letter 19374, *Pollock Elementary School, Pollock, Louisiana* (hereafter "the Letter"), was performed in accordance with generally accepted practices employed by other consultants undertaking similar studies at the same time and in the same geographical area; and EH&E observed that degree of care and skill generally exercised by such other consultants under similar circumstances and conditions. The observations described in the Letter were made under the conditions stated therein. The conclusions presented in the Letter were based solely upon the services described therein, and not on scientific tasks or procedures beyond the scope of described services.
2. Observations were made of the site as indicated within the Letter. Where access to portions of the site was unavailable or limited, EH&E renders no opinion as to the condition of that portion of the site.
3. The observations and recommendations contained in the Letter are based on limited environmental sampling and visual observation and were arrived at in accordance with generally accepted standards of industrial hygiene practice. The sampling and observations conducted at the site were limited in scope and, therefore, cannot be considered representative of areas not sampled or observed.
4. When an outside laboratory conducted sample analyses, EH&E relied upon the data provided and did not conduct an independent evaluation of the reliability of these data.
5. The purpose of the Letter was to assess the characteristics of the subject site as stated within the Letter. No specific attempt was made to verify compliance by any party with all federal, state, or local laws and regulations.

Sales, James

From: Mitchell McCrea <mmccrea@baronbudd.com>
Sent: Thursday, June 25, 2015 9:35 AM
To: Sales, James
Subject: RE: PCBs: Pollock Elementary, LA

Ok, thanks.

Mitchell McCrea
Baron & Budd, PC | Attorney

214.521.3605 main
214.523.6420 direct
214.498.7508 mobile

www.baronandbudd.com

Dallas | Austin | Los Angeles | Baton Rouge | New Orleans

From: Sales, James [mailto:sales.james@epa.gov]
Sent: Thursday, June 25, 2015 9:34 AM
To: Mitchell McCrea
Subject: RE: PCBs: Pollock Elementary, LA

Hello—As a follow-up to my request for a cost estimate you should consider the following:

1. The caulk can be pulled out with a visual confirmation that it has been removed—no additional sampling would be required.
- 2 The removed caulk can be stored in a place that meets 761.65 b with a required disposal date of 1 year after the date the caulk is removed.

From: Mitchell McCrea [mailto:mmccrea@baronbudd.com]
Sent: Wednesday, June 24, 2015 10:42 AM
To: Sales, James
Subject: RE: PCBs: Pollock Elementary, LA

We will work on this.

Mitchell McCrea
Baron & Budd, PC | Attorney

214.521.3605 main
214.523.6420 direct
214.498.7508 mobile

www.baronandbudd.com

Dallas | Austin | Los Angeles | Baton Rouge | New Orleans

From: Sales, James [mailto:sales.james@epa.gov]
Sent: Wednesday, June 24, 2015 9:32 AM

To: Mitchell McCrea

Subject: RE: PCBs: Pollock Elementary, LA

Hello. I have reviewed your application. I would prefer if the interim measure plan included pulling out the old caulk and disposing of it. If this were the plan, no EPA approval would be required to remove the old caulk. We could then replace the old caulk with new caulk and complete the potential for further remediation of any PCB contaminated substrate under a 761.61c. at a later date.

Please include a cost estimate for removing the old caulk in your application as an option under interim measures and whether this option is feasible for the school to accomplish at this time.

From: Mitchell McCrea [<mailto:mmccrea@baronbudd.com>]

Sent: Monday, June 22, 2015 4:42 PM

To: Sales, James

Cc: Christina Cossich

Subject: PCBs: Pollock Elementary, LA

Jim,

Attached is the revised application. Please let us know if it meets with your approval. Thank you.

Mitchell McCrea

Baron & Budd, PC | Attorney

214.521.3605 main

214.523.6420 direct

214.498.7508 mobile

www.baronandbudd.com

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Sales, James

From: Sales, James
Sent: Thursday, June 25, 2015 9:34 AM
To: Mitchell McCrea
Subject: RE: PCBs: Pollock Elementary, LA

Hello—As a follow-up to my request for a cost estimate you should consider the following:

1. The caulk can be pulled out with a visual confirmation that it has been removed—no additional sampling would be required.
- 2 The removed caulk can be stored in a place that meets 761.65 b with a required disposal date of 1 year after the date the caulk is removed.

From: Mitchell McCrea [<mailto:mmccrea@baronbudd.com>]
Sent: Wednesday, June 24, 2015 10:42 AM
To: Sales, James
Subject: RE: PCBs: Pollock Elementary, LA

We will work on this.

Mitchell McCrea
Baron & Budd, PC | Attorney

214.521.3605 main
214.523.6420 direct
214.498.7508 mobile

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From: Sales, James [<mailto:sales.james@epa.gov>]
Sent: Wednesday, June 24, 2015 9:32 AM
To: Mitchell McCrea
Subject: RE: PCBs: Pollock Elementary, LA

Hello. I have reviewed your application. I would prefer if the interim measure plan included pulling out the old caulk and disposing of it. If this were the plan, no EPA approval would be required to remove the old caulk. We could then replace the old caulk with new caulk and complete the potential for further remediation of any PCB contaminated substrate under a 761.61c. at a later date.

Please include a cost estimate for removing the old caulk in your application as an option under interim measures and whether this option is feasible for the school to accomplish at this time.

From: Mitchell McCrea [<mailto:mmccrea@baronbudd.com>]
Sent: Monday, June 22, 2015 4:42 PM
To: Sales, James

Cc: Christina Cossich
Subject: PCBs: Pollock Elementary, LA

Jim,

Attached is the revised application. Please let us know if it meets with your approval. Thank you.

Mitchell McCrea
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214.498.7508 mobile

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Sales, James

From: Mitchell McCrea <mmccrea@baronbudd.com>
Sent: Monday, June 22, 2015 4:53 PM
To: Sales, James
Subject: RE: PCBs: Pollock Elementary, LA

Sounds good. Thanks.

Mitchell McCrea
Baron & Budd, PC | Attorney

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214.523.6420 direct
214.498.7508 mobile

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From: Sales, James [mailto:sales.james@epa.gov]
Sent: Monday, June 22, 2015 4:51 PM
To: Mitchell McCrea
Subject: RE: PCBs: Pollock Elementary, LA

Thanks—I'll look it over tomorrow. Have you already sent a hard copy? If not, hold off until after I have reviewed it in case there are any changes I would like to have made.

I'm thinking that after we get this revision complete we could schedule a meeting here in the office. That way we will all be viewing and talking about the latest information.

From: Mitchell McCrea [mailto:mmccrea@baronbudd.com]
Sent: Monday, June 22, 2015 4:42 PM
To: Sales, James
Cc: Christina Cossich
Subject: PCBs: Pollock Elementary, LA

Jim,

Attached is the revised application. Please let us know if it meets with your approval. Thank you.

Mitchell McCrea
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214.498.7508 mobile

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Sales, James

From: Sales, James
Sent: Wednesday, June 24, 2015 8:30 AM
To: Tisa, Kimberly
Subject: FW: PCBs: Pollock Elementary, LA
Attachments: Letter to EPA Region 6 revised.pdf

Kim- this is our first school—managers here are very insistent we don't require anything more than other regions—the first step is interim measure for 600 feet of caulk—do you see any problem with what they proposed?

From: Mitchell McCrea [mailto:mmccrea@baronbudd.com]
Sent: Monday, June 22, 2015 4:42 PM
To: Sales, James
Cc: Christina Cossich
Subject: PCBs: Pollock Elementary, LA

Jim,

Attached is the revised application. Please let us know if it meets with your approval. Thank you.

Mitchell McCrea
Baron & Budd, PC | Attorney

214.521.3605 main
214.523.6420 direct
214.498.7508 mobile

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Sales, James

From: Sales, James
Sent: Wednesday, June 24, 2015 10:47 AM
To: Mitchell McCrea
Subject: RE: PCBs: Pollock Elementary, LA

OK—If you decide to remove the caulk now, no EPA approval is required. We would only need to issue a 761.61 c for remediation waste of any contaminated substrate

From: Mitchell McCrea [mailto:mmccrea@baronbudd.com]
Sent: Wednesday, June 24, 2015 10:42 AM
To: Sales, James
Subject: RE: PCBs: Pollock Elementary, LA

We will work on this.

Mitchell McCrea
Baron & Budd, PC | Attorney

214.521.3605 main
214.523.6420 direct
214.498.7508 mobile

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From: Sales, James [mailto:sales.james@epa.gov]
Sent: Wednesday, June 24, 2015 9:32 AM
To: Mitchell McCrea
Subject: RE: PCBs: Pollock Elementary, LA

Hello. I have reviewed your application. I would prefer if the interim measure plan included pulling out the old caulk and disposing of it. If this were the plan, no EPA approval would be required to remove the old caulk. We could then replace the old caulk with new caulk and complete the potential for further remediation of any PCB contaminated substrate under a 761.61c. at a later date.

Please include a cost estimate for removing the old caulk in your application as an option under interim measures and whether this option is feasible for the school to accomplish at this time.

From: Mitchell McCrea [mailto:mmccrea@baronbudd.com]
Sent: Monday, June 22, 2015 4:42 PM
To: Sales, James
Cc: Christina Cossich
Subject: PCBs: Pollock Elementary, LA

Jim,

Attached is the revised application. Please let us know if it meets with your approval. Thank you.

Mitchell McCrea
Baron & Budd, PC | Attorney

214.521.3605 main
214.523.6420 direct
214.498.7508 mobile

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Sales, James

From: Sales, James
Sent: Wednesday, June 24, 2015 2:11 PM
To: Jones, Bruce
Subject: FW: PCBs: Pollock Elementary, LA
Attachments: Letter to EPA Region 6 revised.pdf

From: Mitchell McCrea [mailto:mmccrea@baronbudd.com]
Sent: Monday, June 22, 2015 4:42 PM
To: Sales, James
Cc: Christina Cossich
Subject: PCBs: Pollock Elementary, LA

Jim,

Attached is the revised application. Please let us know if it meets with your approval. Thank you.

Mitchell McCrea
Baron & Budd, PC | Attorney

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214.523.6420 direct
214.498.7508 mobile

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Sales, James

From: Sales, James
Sent: Tuesday, July 07, 2015 9:29 AM
To: Mitchell McCrea
Subject: RE: PCBs: Pollock Elementary, LA

OK—great! Let me know whether or not the school will agree to removing the caulk or not as well. If they will, then they may proceed without EPA approval. EPA can then move to consider a 761.61 c remediation of any potential PCB contamination of the substrate (i.e., the metal or the brick that came into contact with the caulk). This could be done on a more extended time frame.

From: Mitchell McCrea [mailto:mmccrea@baronbudd.com]
Sent: Tuesday, July 07, 2015 9:09 AM
To: Sales, James
Subject: RE: PCBs: Pollock Elementary, LA

We are close. By next week, we should have a further-revised application to you.

Mitchell McCrea
Baron & Budd, PC | Attorney

214.521.3605 main
214.523.6420 direct
214.498.7508 mobile

www.baronandbudd.com

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From: Sales, James [mailto:sales.james@epa.gov]
Sent: Tuesday, July 07, 2015 9:07 AM
To: Mitchell McCrea
Subject: RE: PCBs: Pollock Elementary, LA

Hello—wanted to ask where you are on the cost estimate for removal of the PCB caulk. The removed caulk may be disposed as municipal solid waste as well.

From: Mitchell McCrea [mailto:mmccrea@baronbudd.com]
Sent: Monday, June 22, 2015 4:42 PM
To: Sales, James
Cc: Christina Cossich
Subject: PCBs: Pollock Elementary, LA

Jim,

Attached is the revised application. Please let us know if it meets with your approval. Thank you.

Mitchell McCrea
Baron & Budd, PC | Attorney

214.521.3605 main
214.523.6420 direct
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Sales, James

From: Sales, James
Sent: Wednesday, July 08, 2015 5:17 PM
To: Fruitwala, Kishor; Spalding, Susan; Jones, Bruce
Subject: FW: PCBs: Pollock Elementary, LA
Attachments: Letter to EPA Region 6 revised.pdf

Attached is the draft revised application for Pollock Elementary to be discussed tomorrow in Susan's office at 1:00 pm. I'll be calling in from home.

The draft revision included more information about the possible final remediation actions required and the projected time frame for completion. It also included a more detailed summary about the location of the contaminated caulk and its potential for exposure to students in the classroom.

This draft did not include the important option of the possibility of removing the caulk now, and a cost estimate for removal of the caulk. This option must include whether the school would agree to remove the caulk if their finances permit. If implemented, the primary exposure pathway to students would be eliminated. The removal of the caulk may be completed without EPA approval, and it may be disposed in a municipal solid waste landfill. I requested that the plan must include this option before being considered complete.

I was informed that this piece of the plan would be included and sent to EPA during the week of July 13.

If the school removes the caulk, EPA could then issue a 761.61 c risk-based approval for the remediation of any residual PCBs that may have leached into the brick or on the metal around the windows. If the school cannot remove the caulk, then a 761.62 c and 761.61 c approval would be the course of action that other Regions have taken for this type of project. Included in the approval would be additional air monitoring and wipe sampling requirements as well as a time frame for completion.

From: Mitchell McCrea [mailto:mmccrea@baronbudd.com]
Sent: Monday, June 22, 2015 4:42 PM
To: Sales, James
Cc: Christina Cossich
Subject: PCBs: Pollock Elementary, LA

Jim,

Attached is the revised application. Please let us know if it meets with your approval. Thank you.

Mitchell McCrea
Baron & Budd, PC | Attorney

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214.523.6420 direct
214.498.7508 mobile

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Sales, James

From: Sales, James
Sent: Tuesday, July 14, 2015 1:19 PM
To: Spalding, Susan; Jones, Bruce; Fruitwala, Kishor
Subject: Attached is my draft for the Pollock Elementary School PCB approval
Attachments: Pollock-app-2015.docx

In preparation for this afternoon's meeting at about 3:30—attached is my draft of the approval. This draft incorporates elements of approvals from both Region 1 and 9.

If the School agrees to remove the caulk now, then we will revise this approval. I expect to get the revised application this week.

James Sales
EPA Region 6 PCB Coordinator
1445 Ross Ave.
Dallas, TX 75202
(214) 665-6796

Sales, James

From: Sales, James
Sent: Friday, July 17, 2015 10:48 AM
To: Mitchell McCrea
Subject: RE: PCBs: Pollock Elementary, LA

Call me at 940-440-9055

From: Mitchell McCrea [<mailto:mmccrea@baronbudd.com>]
Sent: Friday, July 17, 2015 10:15 AM
To: Sales, James
Subject: RE: PCBs: Pollock Elementary, LA

Not yet. Some folks have been out on summer vacations, so it will likely be the first of next week instead of today before I have an answer. Have a good weekend.

From: Sales, James [<mailto:sales.james@epa.gov>]
Sent: Thursday, July 16, 2015 9:06 AM
To: Mitchell McCrea
Subject: RE: PCBs: Pollock Elementary, LA

Hello—Any word on whether the school will remove the caulk now?

From: Mitchell McCrea [<mailto:mmccrea@baronbudd.com>]
Sent: Wednesday, June 24, 2015 10:42 AM
To: Sales, James
Subject: RE: PCBs: Pollock Elementary, LA

We will work on this.

Mitchell McCrea
Baron & Budd, PC | Attorney

214.521.3605 main
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www.baronandbudd.com

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From: Sales, James [<mailto:sales.james@epa.gov>]
Sent: Wednesday, June 24, 2015 9:32 AM
To: Mitchell McCrea
Subject: RE: PCBs: Pollock Elementary, LA

Hello. I have reviewed your application. I would prefer if the interim measure plan included pulling out the old caulk and disposing of it. If this were the plan, no EPA approval would be required to remove the old caulk. We could then replace the old caulk with new caulk and complete the potential for further remediation of any PCB contaminated substrate under a 761.61c. at a later date.

Please include a cost estimate for removing the old caulk in your application as an option under interim measures and whether this option is feasible for the school to accomplish at this time.

From: Mitchell McCrea [<mailto:mmccrea@baronbudd.com>]

Sent: Monday, June 22, 2015 4:42 PM

To: Sales, James

Cc: Christina Cossich

Subject: PCBs: Pollock Elementary, LA

Jim,

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Mitchell McCrea

Baron & Budd, PC | Attorney

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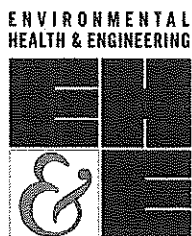
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Sales, James

From: Mitchell McCrea <mmccrea@baronbudd.com>
Sent: Friday, July 17, 2015 7:28 PM
To: Sales, James
Subject: Pollock Elementary, LA
Attachments: Letter to EPA Region 6 draft rev2.pdf

Jim,

Please see the attached and let me know what you think.



DRAFT

**Environmental Health
& Engineering, Inc.**

117 Fourth Avenue
Needham, MA
02494-2725

TEL 800-825-5343
781-247-4300
FAX 781-247-4305

www.eheinc.com

July 17, 2015

Mr. James S. Sales
U.S. Environmental Protection Agency
Region 6
Mail Code: 6PD
1445 Ross Avenue, Suite 1200
Dallas, TX 75202-2733

RE: Pollock Elementary School, Pollock, Louisiana (EH&E 19374)

Dear Mr. Sales:

This letter is intended to provide the U.S. Environmental Protection Agency (EPA) with information regarding polychlorinated biphenyl (PCB)-contaminated building materials that exceed the allowable levels under the federal PCB regulations. These materials were identified at Pollock Elementary School located at 4001 Highway 8 in Pollock, Louisiana (the School). Environmental Health & Engineering, Inc. (EH&E) is working in conjunction with the Director of Facilities and the Superintendent of the Grant Parish School District.

As detailed below, interior and exterior caulk has been characterized and surface wipe and air samples were collected in multiple locations in the School. PCB concentrations in the caulk samples ranged from below detection to 78,800 parts per million (ppm). PCBs were not detected in any of the wipe samples collected from accessible surfaces within the School. The highest air concentrations (199 and 240 nanograms per cubic meter [ng/m^3]) were measured in an unventilated hallway area adjacent to the School's auditorium during July. The highest air concentration in a classroom was $62 \text{ ng}/\text{m}^3$ during the same time period.

Per your email, the Grant Parish School District will proceed with removal of up to 660 linear feet of accessible caulk containing PCBs above 50 ppm. This material will be disposed of in accordance with local, state and federal regulations at a licensed landfill approved to accept such waste. Following removal of the caulk, adjacent window and door frames, and brick surfaces will be cleaned using CAPSUR® or a similar product designed for removal of PCB residues. Representative sections of the cleaned areas will be sampled using surface wipes to determine if PCB levels are less than or equal to 1 microgram per 100 square centimeters ($1 \text{ ug}/100 \text{ cm}^2$). If

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wipe samples are greater than 1 ug/100 cm² wipe then one or more of the following measures will be taken, based on site conditions:

- The areas will be re-cleaned and retested.
- Adjacent substrate will be sampled to determine if PCBs have migrated into the substrate.
- Adjacent substrate will be encapsulated using epoxy, paint or another compatible sealant, as an interim solution until a permanent solution can be put in place for the adjacent materials.

The goal of this mitigation is to reduce source material in the building and prevent dermal contact with PCB-containing caulk or adjacent materials, and decrease and/or maintain airborne PCB concentrations in the School to the lowest feasible levels. The School District understands that they can proceed with these activities without EPA approval; however, we are informing EPA of these activities.

Interim mitigation will be completed during the summer of 2015. A final mitigation plan involving either removal or encapsulation of adjacent PCB-contaminated material and/or replacement of the affected building materials will be developed within two years or by August 2017, and submitted to the EPA for review and approval.

SUMMARY

Concentrations of PCBs in caulk exceeding 50 ppm were identified in three entryways leading to the school auditorium. These include two side entrances to the auditorium building from outdoors as well as a glass-enclosed hallway area (“connector hallway”) that joins the auditorium building to the main school building (“Building A”) that houses ten classrooms for grades five and six. The connector hallway can be closed off from the classroom part of Building A with a sliding glass door, but it is generally left open. PCBs were not detected in caulk sampled in any other areas of the school buildings. Each unique type of caulk (based on visual inspection) in each building was sampled. No exceedances of the 50 ppm threshold were identified in classrooms, offices, or other high use areas of the School. Similarly, the highest PCB concentration in the air (240 ng/m³) was measured in the connector hallway under very low ventilation conditions.

Hallways are not air conditioned, and classroom doors are kept closed year round. Each classroom has its own heat pump system for heating and air conditioning. The auditorium is air conditioned with a separate ventilation system. One unit heater in the main hallway of the school was identified. The following provides more detailed information regarding EH&E’s inspection and testing for PCB-containing caulk, the results of air and wipe sampling conducted within the School and a brief discussion of the results as they relate to human health.

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BUILDING INFORMATION

The existing School building was built in 1957 with an auditorium and enclosed entrances likely added at a later date. The entire Pollock Elementary School comprises eight separate buildings that are freestanding or connected by outdoor walkways. Building A, which houses fifth and sixth grades, is connected to an auditorium building by a glass-enclosed connector hallway area. Building A is approximately 35,000 sf with 14,000 sf occupied by the auditorium. The connector hallway is approximately 1,200 sf. Building A is brick construction with aluminum siding façade on all of the building except the auditorium, which has a brick façade.

NATURE OF PCB CONTAMINATED MATERIAL

EH&E performed an investigation to identify suspect PCB-containing caulk and other sealants used throughout representative portions of the School. EH&E collected samples in a manner to investigate the installation and application of caulk, including an evaluation of evidence indicating caulk replacement or repair work.

Appendix A provides a figure illustrating the locations where bulk caulk as well as air and surface wipe samples were collected. Six unique types of caulk were identified, based on texture and color, and sampled. PCBs were detected at concentrations exceeding 50 ppm in 6 of the 17 caulk samples collected. Table 1 provides the bulk caulk sample results; the laboratory report is located in Appendix B.

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Table 1 Analytical Results for Polychlorinated Biphenyls in Bulk Caulk Samples from Pollock Elementary School, Pollock, Louisiana, July 30, 2014

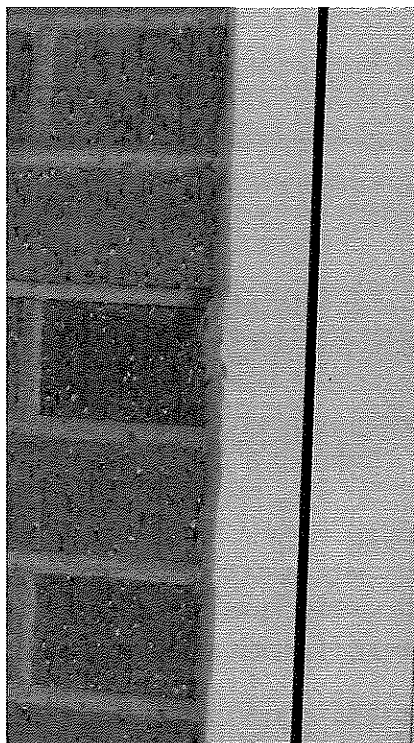
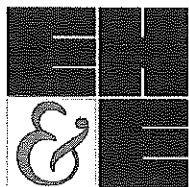
| Sample ID | Description | Aroclor 1254 (ppm) | Aroclor 1260 (ppm) | Total PCBs (ppm) |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------|--------------------|--------------------|------------------|
| 154923 | Aluminum window and floor in glass hallway area of Building A near auditorium entrance (gray and white) | 31,700 | 47,100 | 78,800 |
| 154924 | Brick to floor in glass hallway area of Building A near auditorium entrance (white) | 28 | 6 | 34 |
| 154925 | Door frame in glass hallway area of Building A near auditorium entrance (gray and white) | 25,600 | 38,700 | 64,300 |
| 154926 | Door frame in glass hallway area of Building A near auditorium entrance (white, crumbly) | 19 | 3 | 22 |
| 154927 | Glass and frame on sliding glass door in glass hallway area of Building A near auditorium entrance (gray) | 3 | — | 3 |
| 154928 | Window frame and metal exterior in glass hallway area of Building A near auditorium entrance (above ceiling tile; gray) | 22,500 | 27,400 | 49,900 |
| 154929 | Window frame and metal exterior above ceiling tile in glass hallway area of Building A near auditorium entrance (gray; duplicate to 154928) | 30,900 | 37,900 | 68,800 |
| 154930 | Window and brick in boys bathroom in Auditorium (gray) | ND | ND | ND |
| 154931 | Exterior door frame to brick of north entrance to auditorium building (gray) | 15,000 | 19,100 | 34,100 |
| 154932 | Expansion joint in floor in Building A, near auditorium entrance (gray, hard) | ND | ND | ND |
| 154933 | Expansion joint in floor in Building A, North Wing (gray, hard) | ND | ND | ND |
| 154934 | Window and sill in Building B, hallway (white, soft) | ND | ND | ND |
| 154935 | Window and sill in Building B, hallway (gray, soft) | ND | ND | ND |
| 159436 | Window and sill in Room B11 of Building B (gray, hard) | ND | ND | ND |
| 159437 | Window and sill in Room B12 of Building B (white, hard) | ND | ND | ND |
| 159438 | Auditorium north entrance interior aluminum door frame and brick (gray) | 24,500 | 28,800 | 53,300 |
| 159439 | Main entrance window interior aluminum window frame and brick (gray, soft) | ND | ND | ND |

PCB polychlorinated biphenyl
ppm parts per million
ND non detect

¹ Polychlorinated biphenyl concentration analysis performed by Alpha Analytical, Inc., Westborough, Massachusetts, using U.S. Environmental Protection Agency (EPA) Method 8082 (GC/ECD).

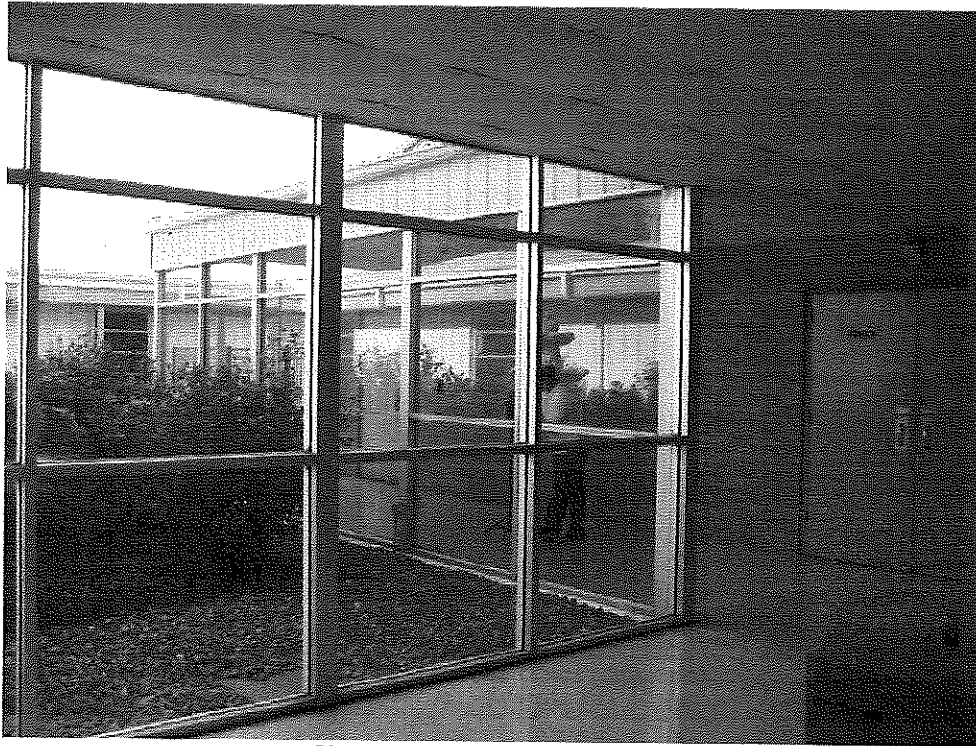
² Aroclor 1016, 1221, 1232, 1242, 1248, 1262 and 1268 were also tested. All results below reporting levels, unless noted.

Photograph 1 depicts the primary PCB caulk and the typical installation detail between the metal window frame and brick wall. Caulk with elevated concentrations of PCBs was found in a limited number of locations at metal window and door frames adjacent to brick, floor, or metal wall components. Photograph 2 depicts a typical section of the School where PCB caulk was used.



Photograph 1 Typical Caulking Detail

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Photograph 2 Typical Wall Section

PROPOSED INTERIM CLEAN UP PLAN

The scope of the proposed interim clean-up plan includes removal of approximately 660 linear feet of caulk and cleaning of adjacent materials as listed in Table 2.

| Table 2 Estimated Quantities of Caulk Requiring Mitigation from Pollock Elementary School, Pollock, Louisiana | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|-----------------------|
| Location | Installation | Estimated Linear Feet |
| Connector hallway | Caulk between floor and windows | 137 |
| | Caulk around doors (outside of auditorium, facing atrium) | 21 |
| | Caulk around doors (inside auditorium) | 63 |
| | Ceiling caulk | 222 |
| Side entrance (south side) - | Interior - Caulk around windows and doors | 52 |
| | Exterior - Caulk around windows and doors | 52 |
| Side entrance (north side)- | Interior - Caulk around windows and doors | 56 |
| | Exterior - Caulk around windows and doors | 56 |
| | Total | 658 |
| PCB polychlorinated biphenyl ppm parts per million ¹ Polychlorinated biphenyl concentration analysis performed by Test America, Inc., North Canton, Ohio, using U.S. Environmental Protection Agency (EPA) Method 8082 (GC/ECD). | | |

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The Grant Parish School District will undertake the following mitigation activities:

- Removal of approximately 660 linear feet of accessible PCB-containing caulk with total PCB concentrations that are greater than or equal to 50 ppm. The contractor will be required to employ measures to limit the potential spread of PCB caulk residues, such as the use of HEPA-filtered vacuum cleaners and wet removal methods, where appropriate. The work area will be isolated to prevent unauthorized entry and the flooring or ground adjacent to the work area will be protected with durable plastic sheeting or tarps to prevent the ground from becoming contaminated with PCB caulk residue.
- Upon removal of the caulk, cleaning and wipe testing of adjacent materials will be completed.
- EH&E or its representatives will collect confirmatory wipe samples from cleaned adjacent materials. If results from the wipe testing indicate PCBs at levels greater than 1 $\mu\text{g}/100\text{ cm}^2$ on adjacent materials, the areas will be re-cleaned and retested.
- Surfaces that cannot be cleaned to the surface criterion of 1 $\mu\text{g}/100\text{ cm}^2$ will be encapsulated with a compatible sealant. Once dry and cured, the encapsulated surfaces will be re-sealed.
- During the two year time period between completion of the interim mitigation measure and final abatement of the caulk, air and wipe samples will be collected twice per year during the summer and winter seasons. Air samples will be collected at representative areas throughout the school. Wipe samples will be collected at encapsulation sites to ensure that break-through is not occurring.

Soil samples from the building drip line have not been collected, and some of the PCB-containing caulking is located adjacent to grass or landscaping stones. Soil samples will also be collected after the interim measures are put in place to assess any spread of PCB-containing material into soil surrounding the building's exterior.

RISK ASSESSMENT

Ecological Risk

The caulk is a non-liquid form of PCBs, and there is no visual evidence that the PCB caulk has contaminated the adjacent ground. By removing and properly disposing of the caulk, and cleaning surfaces of PCB residues, the School will minimize potential exposures to human and ecological receptors.

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Human Health Risk Assessment

Air Sampling

EH&E collected air samples for analysis of PCB homologs (modified EPA Method 8270D-SIM) on July 29, 2014. Two blanks and one duplicate were collected for quality assurance purposes. One outdoor air sample was collected for comparison purposes. The samples were collected with polyurethane foam (PUF) sampling media in borosilicate glass tubes (prepared and provided by Alpha Analytical, Mansfield, Massachusetts) using a calibrated air sampling pump (SKC Quick Take, SKC Inc., Eighty Four, Pennsylvania). At each location, air samples were collected to coincide with normal school hours (approximately 7 hours) at a flow rate of 1.0 liter per minute. All samples were sent to Alpha Analytical, Inc. for analysis.

Table 3 provides a summary of the air sampling data collected at the School. Air sampling locations are provided in Appendix C. The laboratory report is provided as Appendix D. Results of the air samples collected in the School indicate airborne concentrations do not exceed the screening level indoor air values provided by the EPA for elementary age school children (300 ng/m^3). The school building is used by students in grades five and six, who are typically younger than 12 years of age. Total PCB concentrations in indoor air ranged from below detection (approximately 7.7 ng/m^3) to 240 ng/m^3 , with the highest level measured in a hallway alcove that is not occupied on a continuous basis by staff or students. Concentrations in the classrooms ranged from below detection to 62 ng/m^3 .

Air samples from five classrooms were collected under normal operating conditions with the windows closed and the air-conditioning operating using existing thermostat settings. All room thermostats were set to approximately 72 degrees Fahrenheit ($^{\circ}\text{F}$), and facilities staff stated that systems run 24-hours per day at that setting. Additional air samples were collected in a glassed-in hallway area that adjoins the auditorium to the hallways and classrooms of Building A. PCB-containing caulk is located in these hallways. This is the area that appears to have been an addition constructed after the original school, and the construction is similar to the entrances on the north and south side of the auditorium, which were also shown to have PCB-containing caulk.

Sales, James

From: Sales, James
Sent: Monday, July 20, 2015 9:04 AM
To: Mitchell McCrea
Subject: RE: Pollock Elementary, LA

Yes. Please submit this to us. Thank you for your efforts and patience. Since the School will remove the caulk, no further approvals are required from EPA until a substrate remediation plan is submitted. I will be glad to work with you on development of the plan. We would approve the substrate plan under 40 CFR 761.61 c. Please call if you have any questions.

From: Mitchell McCrea [mailto:mmccrea@baronbudd.com]
Sent: Friday, July 17, 2015 7:28 PM
To: Sales, James
Subject: Pollock Elementary, LA

Jim,

Please see the attached and let me know what you think.

Sales, James

From: Sales, James
Sent: Monday, July 20, 2015 4:39 PM
To: Mitchell McCrea
Subject: RE: Pollock Elementary, LA

Just send it fedex if that's ok

From: Mitchell McCrea [mailto:mmccrea@baronbudd.com]
Sent: Monday, July 20, 2015 4:16 PM
To: Sales, James
Subject: RE: Pollock Elementary, LA

Can we submit by email, or does it need to be by certified mail?

Mitchell McCrea
Baron & Budd, PC | Attorney

214.521.3605 main
214.523.6420 direct
214.498.7508 mobile

www.baronandbudd.com

Dallas | Austin | Los Angeles | Baton Rouge | New Orleans

From: Sales, James [mailto:sales.james@epa.gov]
Sent: Monday, July 20, 2015 9:04 AM
To: Mitchell McCrea
Subject: RE: Pollock Elementary, LA

Yes. Please submit this to us. Thank you for your efforts and patience. Since the School will remove the caulk, no further approvals are required from EPA until a substrate remediation plan is submitted. I will be glad to work with you on development of the plan. We would approve the substrate plan under 40 CFR 761.61 c. Please call if you have any questions.

From: Mitchell McCrea [mailto:mmccrea@baronbudd.com]
Sent: Friday, July 17, 2015 7:28 PM
To: Sales, James
Subject: Pollock Elementary, LA

Jim,

Please see the attached and let me know what you think.

Sales, James

From: Spalding, Susan
Sent: Tuesday, July 28, 2015 11:02 AM
To: Sales, James; Fruitwala, Kishor; Jones, Bruce
Subject: RE: PCBs: Pollock Elementary, LA

OK thanks.

Susan Spalding
Associate Director, RCRA
EPA Region 6
(214) 665-8022

From: Sales, James
Sent: Tuesday, July 28, 2015 10:49 AM
To: Spalding, Susan; Fruitwala, Kishor; Jones, Bruce
Subject: RE: PCBs: Pollock Elementary, LA

Susan, When I asked for a revised application to include the option of removal of the caulk, I was looking for two things. First, to make sure the school had actually been given an estimated cost to consider since we weren't dealing directly with the school.

Second, if the school decided not to remove the caulk due to the cost, I wanted us to have some kind of idea of how much money the school was going to need for remediation since the premise of the whole application was that the school didn't have the money and needed time to raise it. I wanted an idea of how much money the school needed to raise for the project so we could better determine how much time we should give them to raise that money and complete the project as soon as was practical.

From: Spalding, Susan
Sent: Tuesday, July 28, 2015 10:32 AM
To: Sales, James; Fruitwala, Kishor; Jones, Bruce
Subject: RE: PCBs: Pollock Elementary, LA

Why do we need a cost estimate? We won't take any action on it.

Susan Spalding
Associate Director, RCRA
EPA Region 6
(214) 665-8022

From: Sales, James
Sent: Tuesday, July 28, 2015 10:14 AM
To: Fruitwala, Kishor; Jones, Bruce; Spalding, Susan
Subject: FW: PCBs: Pollock Elementary, LA

FYI

From: Mitchell McCrea [<mailto:mmccrea@baronbudd.com>]
Sent: Wednesday, June 24, 2015 10:42 AM

To: Sales, James
Subject: RE: PCBs: Pollock Elementary, LA

We will work on this.

Mitchell McCrea
Baron & Budd, PC | Attorney

214.521.3605 main
214.523.6420 direct
214.498.7508 mobile

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From: Sales, James [<mailto:sales.james@epa.gov>]
Sent: Wednesday, June 24, 2015 9:32 AM
To: Mitchell McCrea
Subject: RE: PCBs: Pollock Elementary, LA

Hello. I have reviewed your application. I would prefer if the interim measure plan included pulling out the old caulk and disposing of it. If this were the plan, no EPA approval would be required to remove the old caulk. We could then replace the old caulk with new caulk and complete the potential for further remediation of any PCB contaminated substrate under a 761.61c. at a later date.

Please include a cost estimate for removing the old caulk in your application as an option under interim measures and whether this option is feasible for the school to accomplish at this time.

From: Mitchell McCrea [<mailto:mmccrea@baronbudd.com>]
Sent: Monday, June 22, 2015 4:42 PM
To: Sales, James
Cc: Christina Cossich
Subject: PCBs: Pollock Elementary, LA

Jim,

Attached is the revised application. Please let us know if it meets with your approval. Thank you.

Mitchell McCrea
Baron & Budd, PC | Attorney

214.521.3605 main
214.523.6420 direct
214.498.7508 mobile

www.baronandbudd.com

Dallas | Austin | Los Angeles | Baton Rouge | New Orleans

BRANCH CHIEF MEETING PCB INFORMATION

I. APPROVED PCB FACILITIES IN REGION 6:

| | |
|------------------------|----|
| Incinerators: | 9 |
| De-chlorination Units: | 1 |
| Landfills: | 4 |
| Commercial Storers: | 6 |
| Total: | 20 |

PCB 761.61 Remediation Projects for 2015 = 3

II. POLLOCK ELEMENTARY

- EPA received and application dated May, 7, 2015, requesting approval of an Interim Clean-up Plan to allow time for Grant Parish School Board to secure funding for the full remediation of approximately 660 linear feet of PCB contaminated caulk with PCB concentrations ranging from 50 to as high as 78,800 parts per million (ppm).

- Approximately 660 linear feet of PCB contaminated caulk with concentrations greater than or equal to 50 ppm was found in three entryways leading to the school auditorium. These included two side entrances to the auditorium building from outdoors as well as a glass-enclosed hallway area ("connector hallway") measuring approximately 1,200 square feet that joins the auditorium building to the main school building that houses ten classrooms for grades five and six. Hallways are not air conditioned, and each classroom has its own heat pump system for heating and air conditioning. The connector hallway can be closed off from the classrooms part of the building with a sliding glass door. PCB caulk was found at metal window and door frames adjacent to brick, floor, or metal wall components. PCBs were not detected in caulk sampled in any other areas of the school buildings including classrooms or offices.

- The contractor for the project collected air samples in accordance with EPA methods on July 29, 2014. Total PCB concentrations in indoor air ranged from below detection (i.e., approximately 7.7 nanograms per cubic meter, ng/m³) to 240 ng/m³. The highest level was measured in the connector hallway alcove. Concentrations in the classrooms ranged from below detection to 62 ng/m³ with windows closed. These indoor air concentrations are within EPA's public health levels for PCBs in air which ranges from 70 to 600 ng/m³. Also, the school was re-lamped about seven years ago which eliminated the presence of any PCB light ballasts.

- EPA requested a revised application that included an option for removing the caulk which requires no EPA authorization.

- On July 17, 2015, EPA was notified that Pollock Elementary would be removing the caulk and would submit a remediation plan for clean-up of any residual PCB contaminated materials found in the substrate at a later date.

WAR ITEM

Subject: Receipt of Action Plan for the Removal of PCB Contaminated Caulk at Pollock Elementary School, Pollock, Louisiana.

Summary: On May, 7, 2015, Pollock Elementary School (Pollock) submitted an application for remediation of Polychlorinated Biphenyl (PCB) contaminated caulk found in its school that is an unauthorized use under the PCB regulations and must be removed for disposal. The application requested approval of an Interim Clean-up Plan that would have encapsulated the existing caulk in-place to allow time for Pollock's Grant Parish School Board to secure funding for the full remediation of approximately 660 linear feet of PCB contaminated caulk with PCB concentrations ranging from 50 to as high as 78,800 parts per million (ppm).

EPA requested that Pollock consider the option of removing the caulk now, and then submitting a final remediation plan for any contaminated substrate when Pollock has the funds. In a letter dated July 21, 2015, Pollock submitted a revised action plan that called for removal of the caulk and cleaning of the adjacent surfaces to reduce any potential for surface contact. The plan does not require EPA approval, and will be implemented during the summer of 2015. A final remediation plan for removal of any contaminated substrate does require EPA approval, and will be submitted by Pollock at a later date.

Sales, James

From: Fruitwala, Kishor
Sent: Thursday, July 30, 2015 9:15 AM
To: McGee, Tomika; Levy, Pauline
Cc: Spalding, Susan; Sales, James
Subject: WAR this week

Action Plan for the Removal of PCB Contaminated Caulk at Pollock Elementary School, Pollock, Louisiana: On May 7, 2015, Pollock Elementary School (Pollock) submitted an application for remediation of Polychlorinated Biphenyl (PCB) contaminated caulk found in its school, considered an unauthorized use under the PCB regulations and must be removed for disposal. The application requested approval of an Interim Clean-up Plan that would have encapsulated the existing caulk in-place to allow time for Pollock's Grant Parish School Board to secure funding for the full remediation of approximately 660 linear feet of PCB contaminated caulk with PCB concentrations ranging from 50 to as high as 78,800 parts per million (ppm). EPA provided Pollock an option to consider removal of the caulk now, and then submit a final remediation plan for any contaminated substrate when Pollock has the funds. In a letter dated July 21, 2015, Pollock submitted a revised action plan that called for removal of the caulk and cleaning of the adjacent surfaces to reduce any potential for surface contact. The plan does not require EPA approval, and will be implemented during the summer of 2015. A final remediation plan for removal of any contaminated substrate will require EPA approval, and will be submitted by Pollock at a later date. (Jim Sales, x6796)

REGION 6 EXECUTIVE SUMMARY

TOPIC: PCBs Contamination in Caulk at Pollock Elementary School, Pollock, Louisiana

DATE: August 12, 2015

CONTACT: James Sales

PURPOSE/ACTION NEEDED: For Information

DEADLINE: Not Applicable

BACKGROUND:

On May, 7, 2015, Pollock Elementary School (Pollock) submitted an application for remediation of Polychlorinated Biphenyl (PCB) contaminated caulk found in its. The application requested approval of an Interim Clean-up Plan that would have encapsulated the existing caulk in-place to allow time for Pollock's Grant Parish School Board to secure funding for the full remediation of approximately 660 linear feet of PCB contaminated caulk with PCB concentrations ranging from 50 to as high as 78,800 parts per million (ppm).

In a letter dated July 21, 2015, Pollock submitted a revised action plan that called for removal of the caulk and cleaning of the adjacent surfaces to reduce any potential for surface contact. The plan does not require EPA approval, and will be implemented during the summer of 2015. A final remediation plan under 40 CFR 761.61 c (i.e., risk based remediation) for removal of any contaminated substrate does require EPA approval, and will be submitted by Pollock at a later date.

CURRENT STATUS:

During the review process, Region 6 consulted with 6RC, OGC, ORCR, and various EPA Regional Offices including Region 1 and Region 9 in regard to the recommended procedure for approving PCB contaminated caulk in schools. OGC is of the opinion that granting a Regional PCB approval to a school to allow the caulk to remain in-place for a specific period of time is a violation of the PCB regulations. As long as caulk is in-place, OGC reasons that it is therefore "in use" and not a waste. This "use" is an unauthorized use under the PCB rules, and EPA cannot grant an approval for an unauthorized use. OGC thinks that if challenged in court, EPA would not have a strong case to defend its action. Instead, OGC has recommended that EPA Regions send a letter to the school explaining that no approval can be issued, and direct them to the EPA PCB website and review its PCBs in caulk information. This information includes Best Management Practices (BMPs) that a school can follow to help minimize contact with the waste such as encapsulation, air monitoring, and regular cleaning of exposed surfaces. Region 9 had the benefit of OGC's review of the unauthorized use issue and sent a letter to the Malibu School encouraging the use of BMPs without approving the continued use of the caulk.

TECHNICAL CONCERNS:

Region 1 was the first Region to encounter a contaminated caulk incident in a school. Based on its experience, it prefers issuing an approval letter that sets out specific time frames for compliance as well as specific interim measures that must be taken to remain in compliance with the EPA approval. Region 1's rationale is two-fold. First, schools often know nothing about environmental remediation activities, and prefer specific technical direction from EPA on how to comply and proceed with the project in order to protect students and faculty. Second, the EPA PCB program is largely without any enforcement resources due to disinvestment, and a PCB approval letter and conditions at least gives the appearance that EPA is capable and willing to engage in enforcement measures to ensure compliance with the approval.

REGULATORY/LEGAL REQUIREMENTS:

There are pros and cons to each approach. During the National PCB Meeting the week of August 3, these pros and cons were discussed, but no final resolution was reached. For new applications received in Region 6, schools will be encouraged to include an option in its application for removal of the caulk first. If that option is not selected, the Region 9 approach is currently being recommended.

ENVIRONMENTAL/PUBLIC HEALTH COMMUNITY CONCERNS

PCBs have recently been upgraded by EPA ORD from a suspected carcinogen (Class 1b) to a probable carcinogen (Class 1). Certain PCB congeners such as PCB congener 11 have been found to have a toxicity equivalent to the dioxin-like PCB congeners. PCBs in caulk was widely used between 1950 and the late 1970s on the interior and exterior of buildings throughout the United States. The buildings are now aging and the caulk is apparently beginning to crumble causing air borne contamination in buildings as well as being washed into storm drains and into our rivers and drinking water supplies. Washington State in Region 10 is currently experiencing this issue. Now with the "probable cancer causing" label potentially attached to PCBs, along with the large suspected universe of PCBs in caulk in buildings, PCBs could become a significant environmental and public health community concern. This would be especially true for PCB contamination in schools and nursing homes.



Workforce Diversity, **E**nvironmental Stewardship **C**haracter, **A**ccountability, **R**espect, **E**xcellence

Sales, James

From: Sales, James
Sent: Wednesday, February 17, 2016 10:22 AM
To: Tisa, Kimberly
Subject: FW: Hello. I wanted to follow up on activities at the Pollock Elementary School. Do you have a status update for me?
Attachments: Pollock Elementary School PCB Source Removal Report - Final.pdf

Kim—I have this school that removed the PCB caulk and now want to deal with the contaminated brick. They want a 61 c to encapsulate the brick as an interim solution before deciding what to do about the brick. Is this something we are approving? I thought that encapsulating doesn't really work..

From: Mitchell McCrea [<mailto:mmccrea@baronbudd.com>]
Sent: Tuesday, February 16, 2016 4:59 PM
To: Sales, James <sales.james@epa.gov>
Cc: Elena Rojo <erojo@baronbudd.com>
Subject: RE: Hello. I wanted to follow up on activities at the Pollock Elementary School. Do you have a status update for me?

Hi, Jim. See the attached report, which has been given to the Grant Parish School District. We just received authorization from the School District to follow the recommendations outlined in Section 3.0 (see pg. 7), so would you please let me know if we can proceed with such recommendations? Thank you.

Mitchell McCrea
Baron & Budd, PC | Attorney

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From: Sales, James [<mailto:sales.james@epa.gov>]
Sent: Tuesday, February 09, 2016 12:43 PM
To: Mitchell McCrea
Subject: RE: Hello. I wanted to follow up on activities at the Pollock Elementary School. Do you have a status update for me?

Yes thank you—that would be fine

From: Mitchell McCrea [<mailto:mmccrea@baronbudd.com>]
Sent: Tuesday, February 09, 2016 12:42 PM
To: Sales, James <sales.james@epa.gov>
Subject: Re: Hello. I wanted to follow up on activities at the Pollock Elementary School. Do you have a status update for me?

Meeting with school district next week, so I'll have an update for you thereafter. Is that ok? All caulk has been removed.

Mitchell McCrea

Office: 214.523.6420

Cell: 214.498.7508

mmccrea@baronbudd.com

On Feb 9, 2016, at 12:34 PM, Sales, James <sales.james@epa.gov> wrote:



Strategic Environmental Services, Inc.

Corporate Headquarters
362 Putnam Hill Road
Sutton, MA 01590

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128 Wildcat Road
Burlington, CT 06013

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PCB Source Removal & Decontamination Report

Pollock Elementary School
4001 Highway 8
Pollock, LA 71467

Prepared for:
Baron & Bud, PC
3102 Oak Lawn Avenue, Suite 1100
Dallas, TX 75219

Prepared by:
Strategic Environmental Services, Inc.
362 Putnam Hill Road
Sutton, MA 01590

February 2016

SES Project No. 15-0023

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Figure 1 - Site Layout with Sample Locations

Appendices:

Appendix A: Site Photographs and Layout

Appendix B: EH&H Summary Report

Appendix C: Analytical Reports

Appendix D: Waste Disposal Documentation

1.0 INTRODUCTION

This PCB Source Removal & Decontamination Report has been prepared by *Strategic Environmental Services, Inc. (SES)* on behalf of Baron & Bud, PC for the Pollock Elementary School in Pollock, Louisiana. The Pollock Elementary School is part of the Parish School District. This plan has been prepared to comply with the U.S. Environmental Protection Agency (EPA) requirements for the proper removal and disposal of PCB containing building materials as PCB Bulk Product Waste in accordance with 40 CFR Part 761.62 of the EPA Toxic Substance Control Act (TSCA). Testing performed by Environmental Health & Engineering, Inc. (EH&E) had determined that window caulking material located at identified locations of the Auditorium contained polychlorinated biphenyls (PCBs) above regulated concentrations. Locations identified to contain PCB caulking are depicted on the attached **Figure 1: Site Layout**. Photographs taken prior to and during removal are included in **Appendix A**.

1.1 Background

The Pollock Elementary School is located at 4001 Highway 8 in Pollock, Louisiana. The building was constructed in 1957 with an auditorium and enclosed entrances reportedly added at a subsequent date. The school consists of eight separate buildings that are freestanding or connected by outdoor walkways. The focus of this report is Building A, which includes the fifth and sixth grades and is connected to the auditorium building by a glass-enclosed connector hallway. Building A encompasses approximately 35,000 square feet, with 14,000 square feet occupied by the auditorium. The connector hallway is approximately 1,200 square feet. Building A is brick construction with aluminum siding façade on all of the building except the auditorium, which has a brick façade.

According to information provided in the EH&E report, interior and exterior caulk has been characterized through bulk sampling. Surface wipe and air samples were also collected at multiple locations within the school. PCB concentrations in the caulk samples reportedly ranged from below detection to a maximum of 78,800 parts per million (ppm). PCBs were not detected in any of the wipe samples collected from the sampled surfaces. The highest air concentrations, reported at 199 and 240 nanograms per cubic meter (ng/m³),

were measured in an unventilated hallway area adjacent to the Auditorium in July 2015. The highest air concentration measured in a classroom was 62 ng/m³, collected during the same time period. A copy of the EH&H report is included in **Appendix B**.

1.2 Project Objectives

The project involved the removal of up to 660 linear feet of accessible caulk containing PCBs at concentrations equal to or greater than 50 parts per million (ppm). Upon removal, the material was disposed of as Bulk Product Waste in accordance with local, state and federal regulations at a licensed landfill approved to accept such waste. Upon removal of the caulk, adjacent window frames, door frames, and brick surfaces were cleaned using Hexane or a similar product designed for removal of PCB residues. Samples were subsequently collected from adjacent brick materials, adjacent surfaces (wipe samples) and underlying exterior soils for PCB analysis.

2.0 REMEDIATION PLAN & IMPLEMENTATION

The work described in this plan shall meet the objectives identified in section 1.2 (Project Objectives) and performed in accordance with 40 CFR Part 761. The remediation work was performed to ensure compliance with EPA TSCA requirements and protect both public health and the environment. Remediation was performed by ARC Demolition (ARC) under the oversight of SES as follows.

2.1 Site Preparation and Controls

- During all remediation activities, ARC maintained control of all entrances and exits to the project site to ensure only authorized personnel entered the work areas and were afforded proper personal protective equipment.
- Work zones were established to include abatement zone, decontamination zone and support zone.
- The support zone included areas adjacent to the building. ARC placed waste containers proximal to entrance doors.
- Appropriate PCB waste containers were lined, covered and secured. The PCB waste containers were properly marked as described in 40 CFR part 761.40 and 761.45.

2.2 Work Area - Decontamination Zone

The decontamination zones included the corridors which run parallel to the work areas. The floor surface within the decontamination zones were completely covered with a single layer of 6-mil polyethylene sheeting.

- Warning signs were posted at all approaches to the work area. Signs were conspicuously posted to permit a person to read signs and take precautionary measures to avoid exposure to PCBs. These signs included PCB M_L markers at each entrance to the work area.
- All doors leading to the exterior were closed, locked and sealed with a single layer of 6-mil polyethylene sheeting. Doors were not utilized for entrance or exit to decontamination zone.
- ARC established contiguous to the work area, a decontamination enclosure consisting of equipment room, shower room, and clean room in series. The only access between contaminated and uncontaminated areas were through this decontamination enclosure. ARC ensured that employees entered and exited the work area through the decontamination area.
- Proper decontamination procedures were followed upon entrance and exit to and from the work and decontamination zones.

2.3 Work Area - Abatement Zone

- Warning signs were posted at all approaches to the work area. Signs were conspicuously posted to permit a person to read signs and take precautionary measures to avoid exposure to PCBs. These signs included PCB M_L markers at each entrance to the work area.
- Isolation barriers were installed as critical barriers at interior side of all window and door systems to isolate the work zone from areas outside of proposed work to prevent release of PCB dust, debris or liquids. Protection included two layers of 6-mil polyethylene sheeting securely affixed to the inside finish surfaces to isolate window or door systems.
- Isolation barriers were installed on interior wall surfaces within the abatement zone to minimize dispersal of dust and debris. Protection included two layers of 4-mil polyethylene sheeting securely affixed to the interior finish surfaces.

- To minimize dust and debris negative pressure filtration devices were utilized to provide a negative pressure enclosure. The use of negative air filtration units with HEPA filtration established a minimum of 4 air changes per hour within the work area.
- All other openings to the building interior such as unit ventilation, ducts, and grills were securely sealed with a two layers of 6-mil polyethylene sheeting from the building interior.
- Isolation barriers remained in place throughout work to prevent migration of any dust, debris or liquids resulting from PCB Bulk Product Waste. All debris generated during operations was HEPA vacuumed continuously throughout the work shift and at the end of a work shift to avoid accumulation.
- All equipment utilized to perform cutting, or demolition was equipped with appropriate dust collection systems.
- All surfaces adjacent to materials removed were properly decontaminated (cleaned) upon completing the removal of PCB Bulk Product Waste.

2.4 Removal Procedures

- Approximately 660 linear feet of accessible PCB-containing caulk with total PCB concentrations that was determined to be greater than or equal to 50 ppm was removed. Prior to removal, above referenced site preparation and control measures, decontamination and containment were established at each work zone. ARC employed measures to limit the potential spread of PCB caulk residues, such as the use of HEPA-filtered vacuum cleaners and wet removal methods, where appropriate.
- Oscillating tools were used to remove materials from the joints and sides of the substrate. Mechanical removal equipment was appropriately fitted with dust collection systems. Any resulting dust, debris or liquid materials or other PCB Bulk Product waste was removed with additional engineering controls such as use of a HEPA vacuum to remove accumulations during removal. Once removed, materials were placed into appropriate temporary containers such as 6-mil polyethylene disposal bags for controlled transport to PCB waste containers at the end of each work shift. PCB Bulk Product Waste was stored for disposal in

accordance with 40 CFR 761.65 and marked in accordance with 40 CFR Part 761.40 and 761.45.

- Upon removal of the caulk, adjacent window frames, door frames, and brick surfaces were cleaned using Hexane or a similar product designed for removal of PCB residues.
- PCB Bulk Product Waste was removed and transported off-site for disposal at a permitted hazardous waste landfill which is an EPA, TSCA approved facility for PCB waste with concentrations of ≥ 50 ppm. Materials containing concentrations of < 50 ppm were transported to a non-hazardous solid waste disposal facility. PCB Bulk Product Waste was removed and properly disposed in accordance with 40 CFR Part 761.62.

2.5 Post Source Removal Sampling

Following the completion of the Bulk Product Waste removal SES performed the following verification sampling in accordance with 40 CFR Part 761.

- Upon completion of work in each area, a visual inspection of all remediated surfaces for visible evidence of dust, debris and liquids was performed by SES. No sampling was performed until the visual inspection was completed and all surfaces were visually free of dust, debris and in the work area.
- Samples were subsequently collected from adjacent brick materials, adjacent surfaces (wipe samples) and underlying exterior soils and were submitted to an independent laboratory for PCB analysis via EPA Method 8082A. Samples were collected in accordance with Subpart O of 40 CFR Part 761 for PCB analysis. Sample locations are depicted on **Figure 1**.

Copies of the analytical reports are included in **Appendix C**. Results of the analysis are summarized as follows:

Table 1: Analytical Results for Polychlorinated Biphenyls - July 30, 2015

| Sample ID | Sample Matrix | Units | Aroclor 1254 | Aroclor 1260 | Aroclor 1262 | Total PCBs |
|-----------|---------------|---------|--------------|--------------|--------------|-------------|
| A | Solid | mg/kg | 0.8 | 0.3 | BRL (0.1) | 1.1 |
| B | Solid | mg/kg | 0.9 | 1.7 | BRL (0.1) | 2.6 |
| C | Solid | mg/kg | 1.2 | 1.8 | BRL (0.1) | 3 |
| D | Solid | mg/kg | 5.8 | 2.5 | BRL (0.1) | 8.3 |
| E | Solid | mg/kg | 1 | 0.5 | BRL (0.1) | 1.5 |
| F | Solid | mg/kg | 1.4 | BRL (0.1) | 1.8 | 3.2 |
| G | Solid | mg/kg | 10.5 | BRL (0.1) | 15.8 | 26.3 |
| H | Solid | mg/kg | 6.3 | BRL (0.1) | 11.4 | 17.7 |
| I | Solid | mg/kg | 0.7 | 0.6 | BRL (0.1) | 1.3 |
| J | Solid | mg/kg | 0.1 | BRL (0.1) | BRL (0.1) | 0.1 |
| K | Solid | mg/kg | BRL (0.1) | 0.5 | BRL (0.1) | 0.5 |
| W-1 | Wipe | ug/Wipe | BRL (1.0) | 2 | BRL (1.0) | 2 |
| W-2 | Wipe | ug/Wipe | 8.7 | 24 | BRL (1.0) | 32.7 |
| W-3 | Wipe | ug/Wipe | BRL (1.0) | BRL (1.0) | BRL (1.0) | BRL (1.0) |
| W-4 | Wipe | ug/Wipe | BRL (1.0) | BRL (1.0) | 4.5 | 4.5 |
| W-5 | Wipe | ug/Wipe | BRL (1.0) | 37.3 | BRL (1.0) | 37.3 |
| W-6 | Wipe | ug/Wipe | BRL (1.0) | 1.6 | BRL (1.0) | 1.6 |
| W-7 | Wipe | ug/Wipe | BRL (1.0) | 9.2 | BRL (1.0) | 9.2 |
| W-8 | Wipe | ug/Wipe | BRL (1.0) | 13.5 | BRL (1.0) | 13.5 |
| W-9 | Wipe | ug/Wipe | BRL (1.0) | 5.1 | BRL (1.0) | 5.1 |
| W-10 | Wipe | ug/Wipe | BRL (1.0) | BRL (1.0) | BRL (1.0) | BRL (1.0) |
| W-11 | Wipe | ug/Wipe | BRL (1.0) | 2.1 | BRL (1.0) | 2.1 |
| S-1 | Soil | mg/kg | BRL (0.05) | 0.9 | BRL (0.05) | 0.9 |
| S-2 | Soil | mg/kg | BRL (0.05) | 0.3 | BRL (0.05) | 0.3 |

BRL - Below Reporting Limit

Bold Print denotes concentration in excess of EPA 1 mg/kg or ug/wipe criteria

With the exception of the samples identified as J and K, brick substrate samples exhibited PCBs at concentrations above the EPA 1.0 mg/kg criteria. With the exception of the wipe samples identified as W-3 and W-10, surface wipe samples exhibited PCBs at concentrations above the EPA 1.0 ug/100 cm² criteria. Neither of the soil samples exhibited PCB concentrations above the EPA 1.0 mg/kg criteria.

2.6 Waste Disposal

On December 9, 2015, two (2) drums of 55-gallon USDOT-approved drums of PCB Bulk Product Waste was transported by LEI, Inc. to the LEI, Inc. facility in Hammond, Louisiana under the uniform hazardous waste process. Copies of the disposal documentation is included in **Appendix D**.

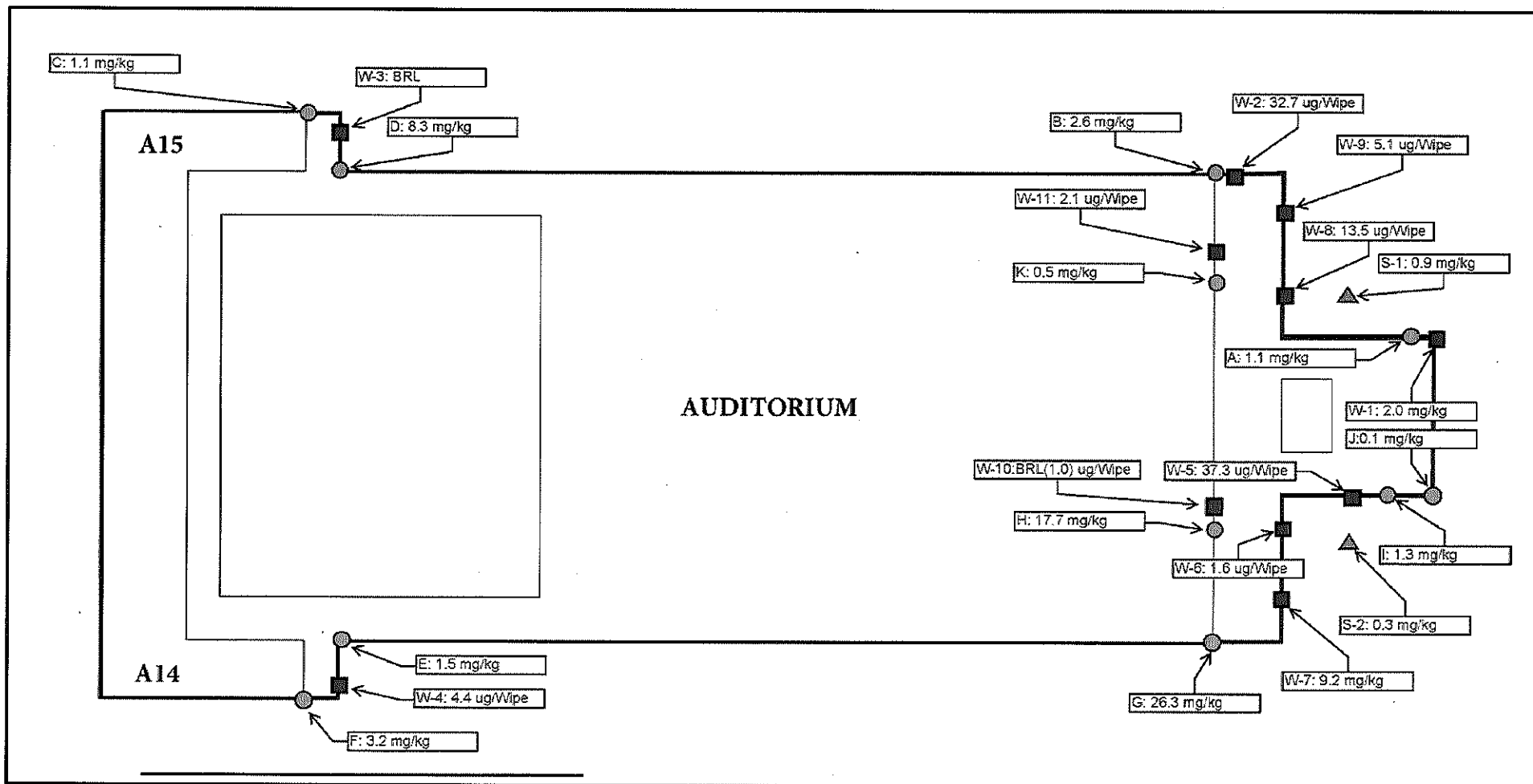
3.0 RECOMMENDATIONS

Based on the results of the analysis presented herein and as outlined in the EH&H report, the following is recommended:

- Sampled surface areas that exhibited PCB concentrations greater than the EPA 1 ug/100 cm² criteria will be re-cleaned using hexane or a similar product designed for removal of PCB residues. This includes all work areas with the exception of the areas adjacent to samples W-3 and W-10. Upon completion, these areas will be retested to confirm proper decontamination criteria has been met.
- Sampled adjacent substrate materials (brick) that exhibited PCB concentrations greater than the EPA 1 mg/kg criteria will be encapsulated using Sikaguard® 62 or 670 sealant, as an interim solution until a permanent solution can be put in place for the adjacent materials.

Prior to the initiation of additional cleaning and encapsulation procedures as recommended above, SES will initiate discussions with EPA to determine whether these actions will be performed as an interim measure or under 761.61 (c).

Figure 1 - Site Layout with Sample Locations



- PCB Containing Caulk (Removed)
- Wipe Sample Location
- ▲ Soil Sample Location
- Solid/Bulk Sample Location

Site: Pollock Elementary School
4001 Highway 8
Pollock, Louisiana

Project #: 15-0317

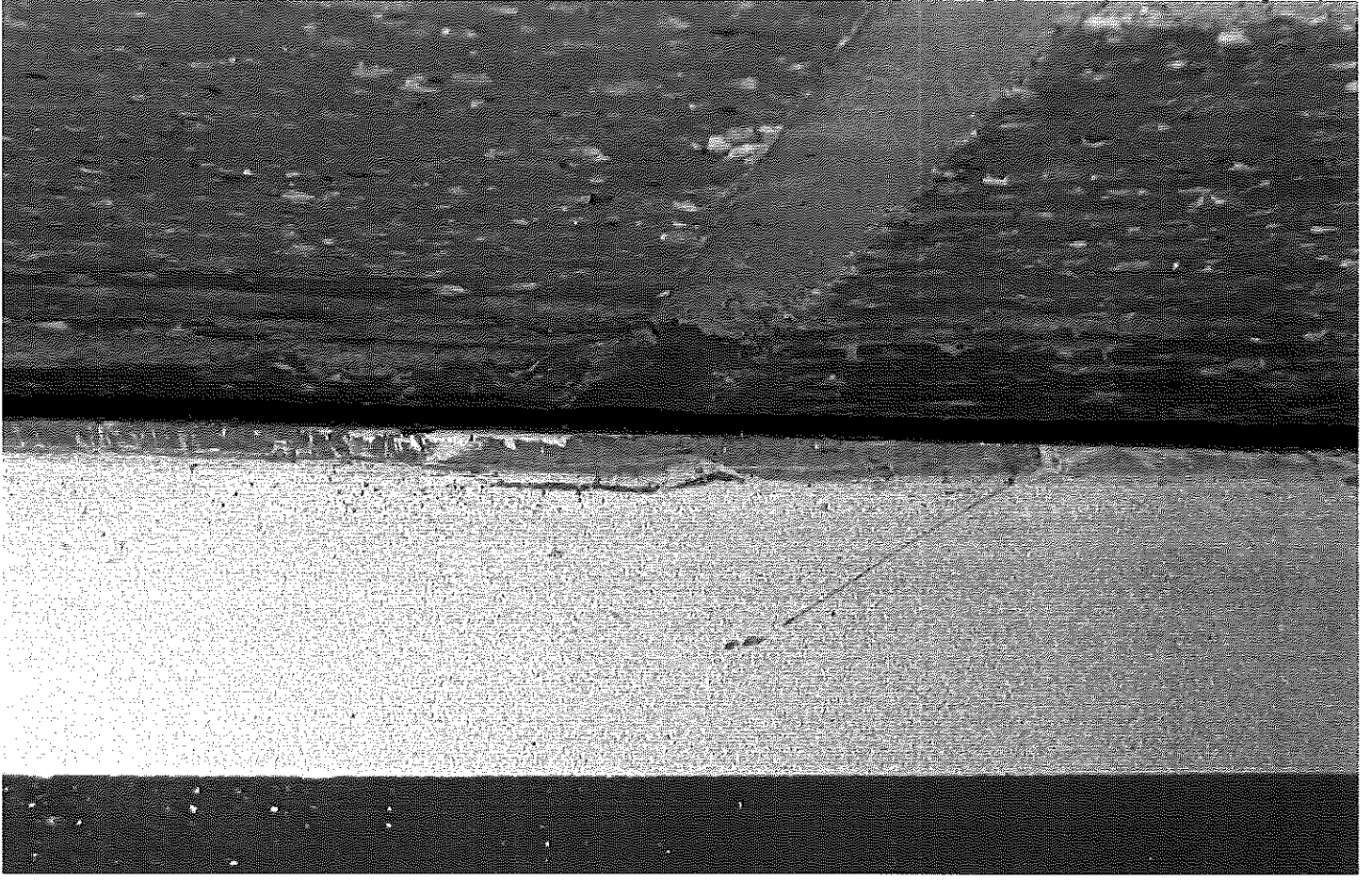
Figure 1- Site Layout w/ Sample Locations

Strategic Environmental Services, Inc.
362 Putnam Hill Road
Sutton, MA 01590

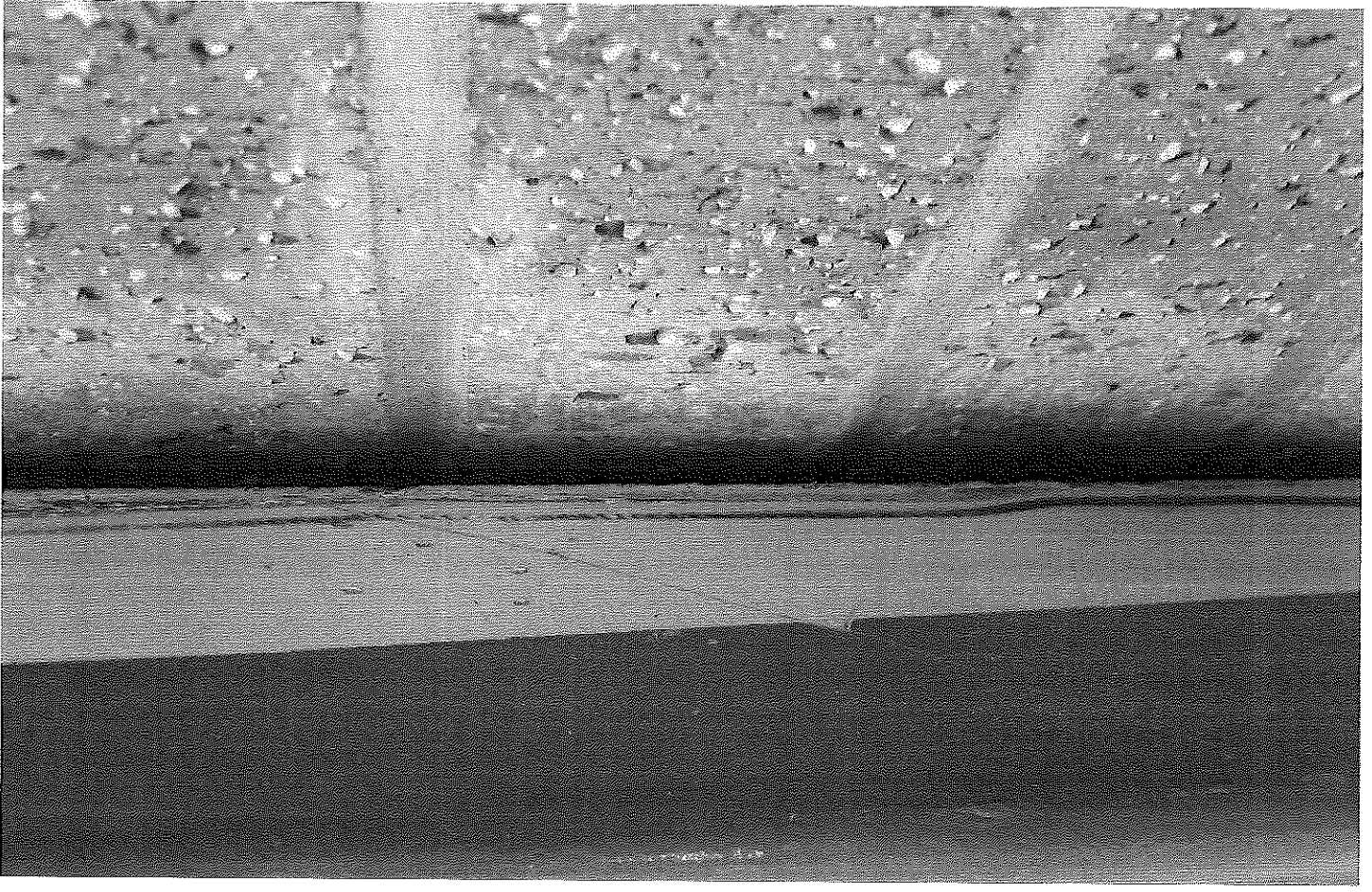
Approved by: CDG

Appendix A: Site Photographs

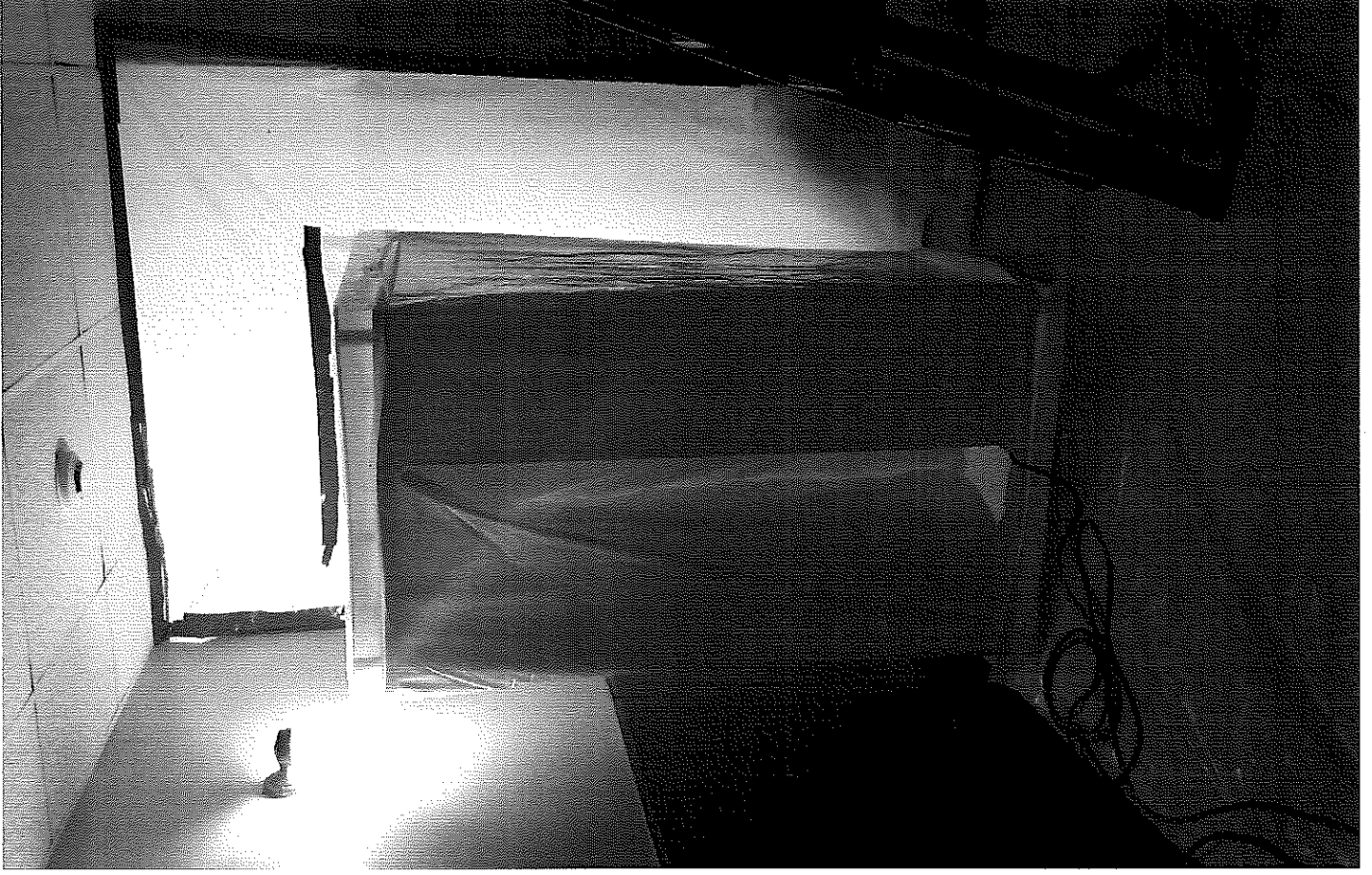
Post Caulking Removal Sample Location D



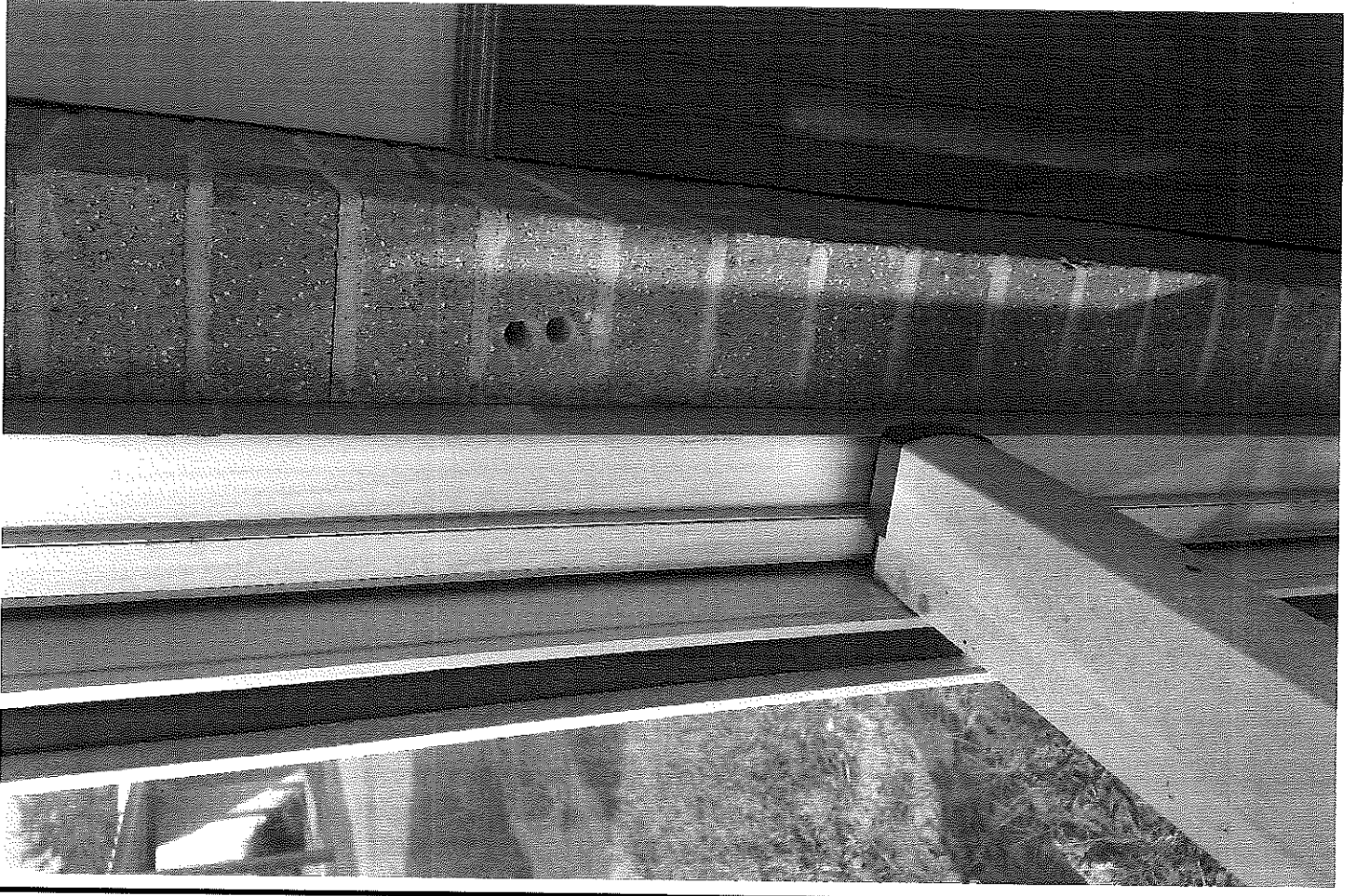
Post-remediation Sample Location D



Containment Storage Room A15



Typical Substrate



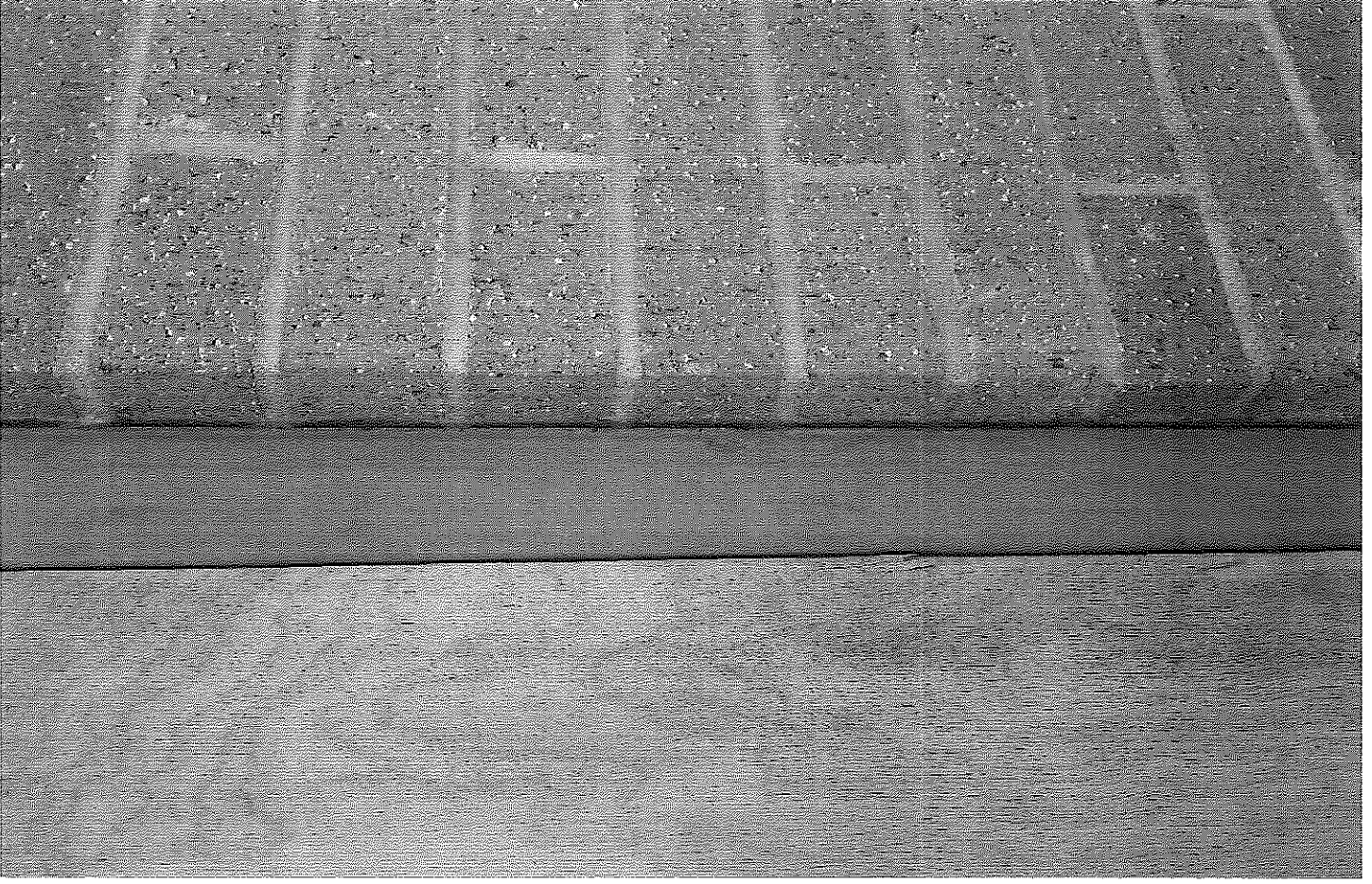
Containment Sample Location W-5



Containment Sample Location W-8

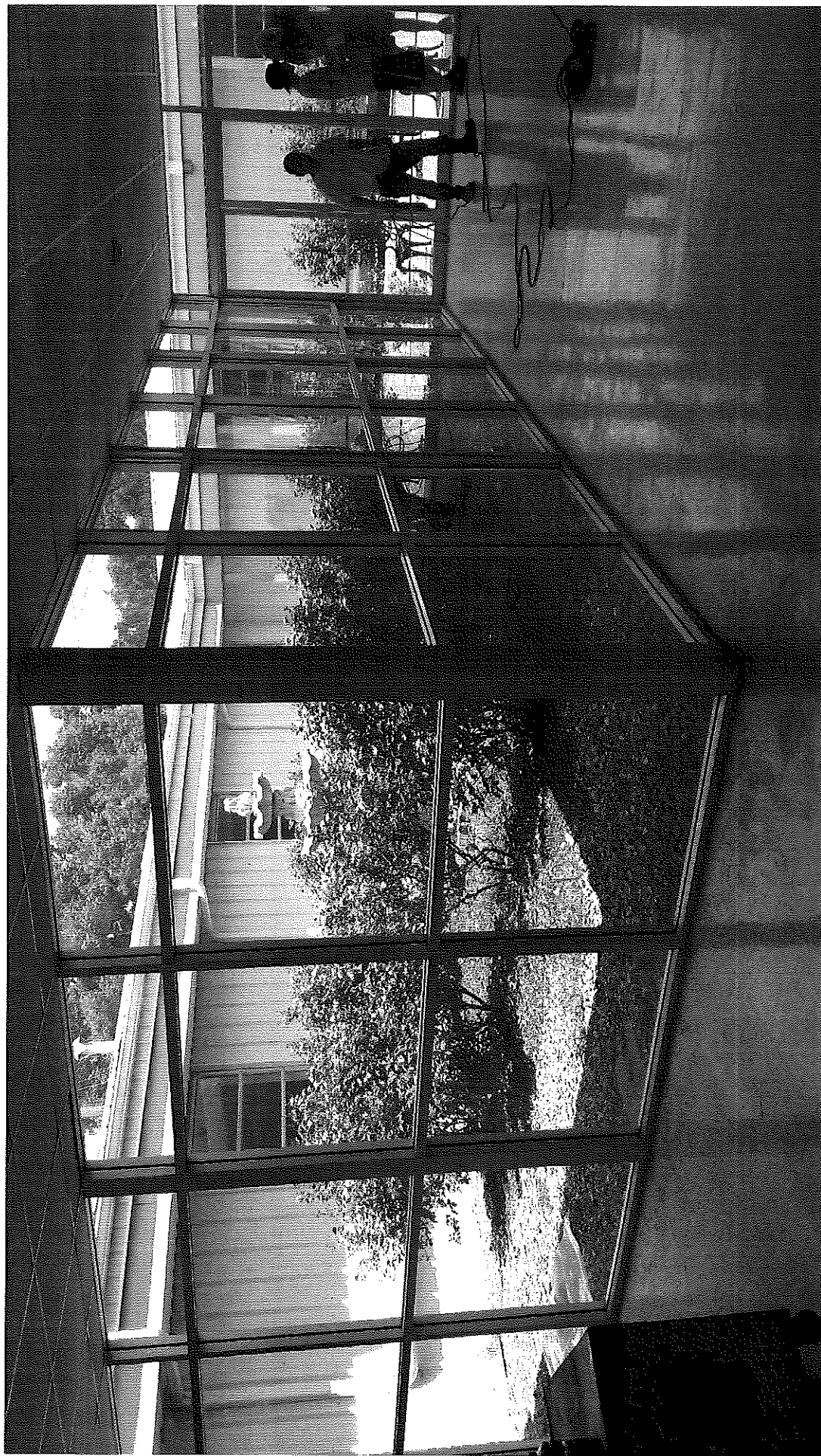


Post Remediation Sample Location K

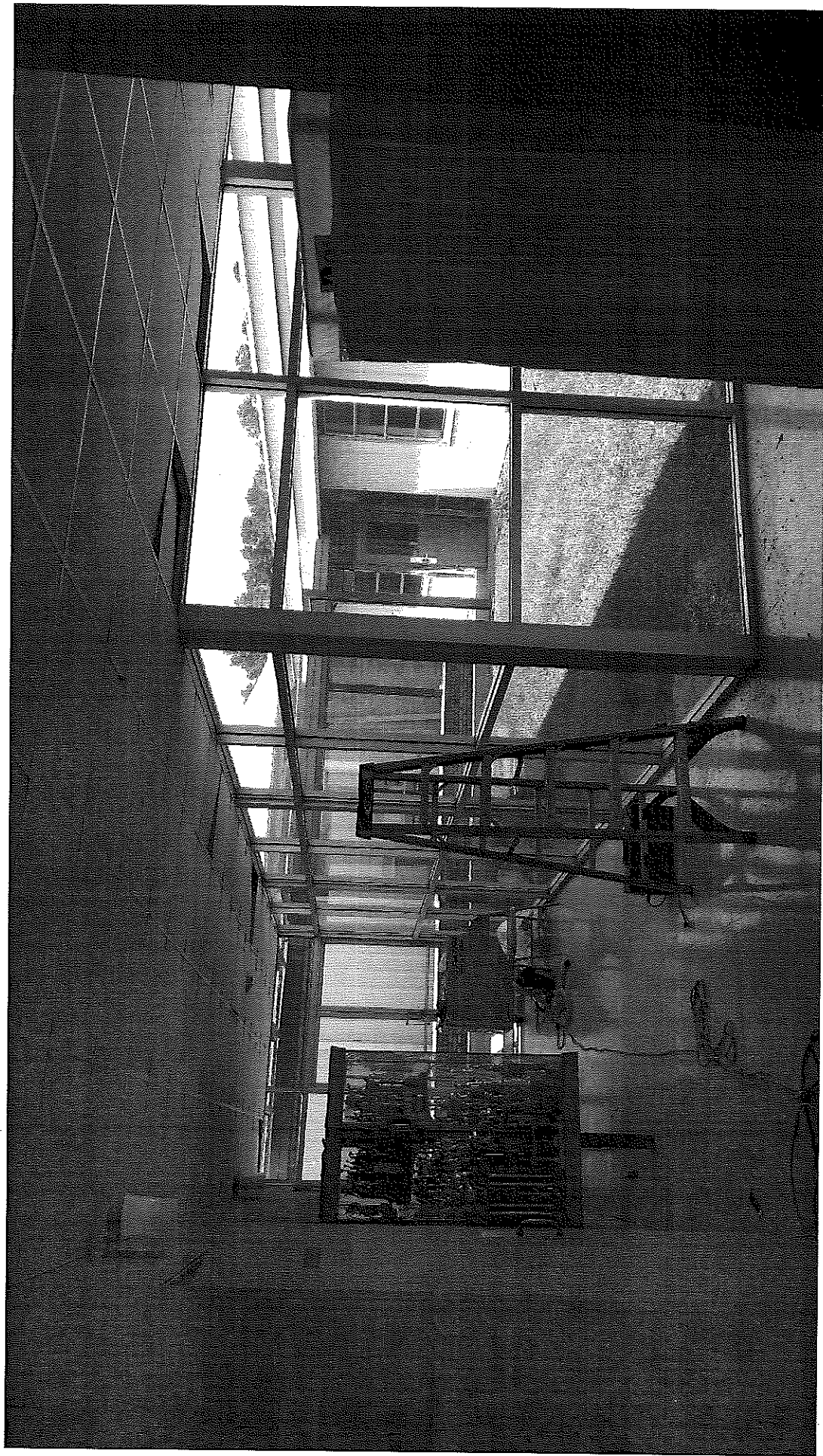


Post Remediation A14





Pre-remediation Sample Location W-6

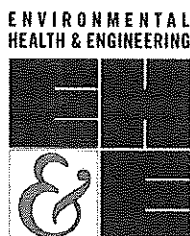


Pre-remediation Sample Location W-6



Containment Storage Room A14

Appendix B: EH&H Summary Report



Environmental Health
& Engineering, Inc.

117 Fourth Avenue
Needham, MA
02494-2725

TEL 800-825-5343
781-247-4300
FAX 781-247-4305

www.eheinc.com

July 20, 2015

Mr. James S. Sales
U.S. Environmental Protection Agency
Region 6
Mail Code: 6PD
1445 Ross Avenue, Suite 1200
Dallas, TX 75202-2733

RE: Pollock Elementary School, Pollock, Louisiana (EH&E 19374)

Dear Mr. Sales:

This letter is intended to provide the U.S. Environmental Protection Agency (EPA) with information regarding polychlorinated biphenyl (PCB)-contaminated building materials that exceed the allowable levels under the federal PCB regulations. These materials were identified at Pollock Elementary School located at 4001 Highway 8 in Pollock, Louisiana (the School). Environmental Health & Engineering, Inc. (EH&E) is working in conjunction with the Director of Facilities and the Superintendent of the Grant Parish School District.

As detailed below, interior and exterior caulk has been characterized and surface wipe and air samples were collected in multiple locations in the School. PCB concentrations in the caulk samples ranged from below detection to 78,800 parts per million (ppm). PCBs were not detected in any of the wipe samples collected from accessible surfaces within the School. The highest air concentrations (199 and 240 nanograms per cubic meter [ng/m^3]) were measured in an unventilated hallway area adjacent to the School's auditorium during July. The highest air concentration in a classroom was $62 \text{ ng}/\text{m}^3$ during the same time period.

Per your email, the Grant Parish School District will proceed with removal of up to 660 linear feet of accessible caulk containing PCBs above 50 ppm. This material will be disposed of in accordance with local, state and federal regulations at a licensed landfill approved to accept such waste. Following removal of the caulk, adjacent window and door frames, and brick surfaces will be cleaned using CAPSUR® or a similar product designed for removal of PCB residues. Representative sections of the cleaned areas will be sampled using surface wipes to determine if PCB levels are less than or equal to 1 microgram per 100 square centimeters ($1 \text{ ug}/100 \text{ cm}^2$). If

wipe samples are greater than 1 ug/100 cm² wipe then one or more of the following measures will be taken, based on site conditions:

- The areas will be re-cleaned and retested.
- Adjacent substrate will be sampled to determine if PCBs have migrated into the substrate.
- Adjacent substrate will be encapsulated using epoxy, paint or another compatible sealant, as an interim solution until a permanent solution can be put in place for the adjacent materials.

The goal of this mitigation is to reduce source material in the building and prevent dermal contact with PCB-containing caulk or adjacent materials, and decrease and/or maintain airborne PCB concentrations in the School to the lowest feasible levels. The School District understands that they can proceed with these activities without EPA approval; however, we are informing EPA of these activities.

Interim mitigation will be completed during the summer of 2015. A final mitigation plan involving either removal or encapsulation of adjacent PCB-contaminated material and/or replacement of the affected building materials will be developed within two years or by August 2017, and submitted to the EPA for review and approval.

SUMMARY

Concentrations of PCBs in caulk exceeding 50 ppm were identified in three entryways leading to the school auditorium. These include two side entrances to the auditorium building from outdoors as well as a glass-enclosed hallway area ("connector hallway") that joins the auditorium building to the main school building ("Building A") that houses ten classrooms for grades five and six. The connector hallway can be closed off from the classroom part of Building A with a sliding glass door, but it is generally left open. PCBs were not detected in caulk sampled in any other areas of the school buildings. Each unique type of caulk (based on visual inspection) in each building was sampled. No exceedances of the 50 ppm threshold were identified in classrooms, offices, or other high use areas of the School. Similarly, the highest PCB concentration in the air (240 ng/m³) was measured in the connector hallway under very low ventilation conditions.

Hallways are not air conditioned, and classroom doors are kept closed year round. Each classroom has its own heat pump system for heating and air conditioning. The auditorium is air conditioned with a separate ventilation system. One unit heater in the main hallway of the school was identified. The following provides more detailed information regarding EH&E's inspection and testing for PCB-containing caulk, the results of air and wipe sampling conducted within the School and a brief discussion of the results as they relate to human health.

BUILDING INFORMATION

The existing School building was built in 1957 with an auditorium and enclosed entrances likely added at a later date. The entire Pollock Elementary School comprises eight separate buildings that are freestanding or connected by outdoor walkways. Building A, which houses fifth and sixth grades, is connected to an auditorium building by a glass-enclosed connector hallway area. Building A is approximately 35,000 sf with 14,000 sf occupied by the auditorium. The connector hallway is approximately 1,200 sf. Building A is brick construction with aluminum siding façade on all of the building except the auditorium, which has a brick façade.

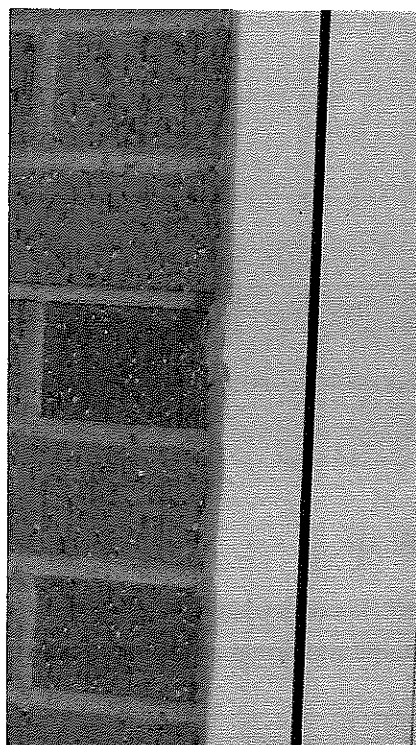
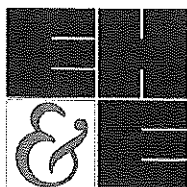
NATURE OF PCB CONTAMINATED MATERIAL

EH&E performed an investigation to identify suspect PCB-containing caulk and other sealants used throughout representative portions of the School. EH&E collected samples in a manner to investigate the installation and application of caulk, including an evaluation of evidence indicating caulk replacement or repair work.

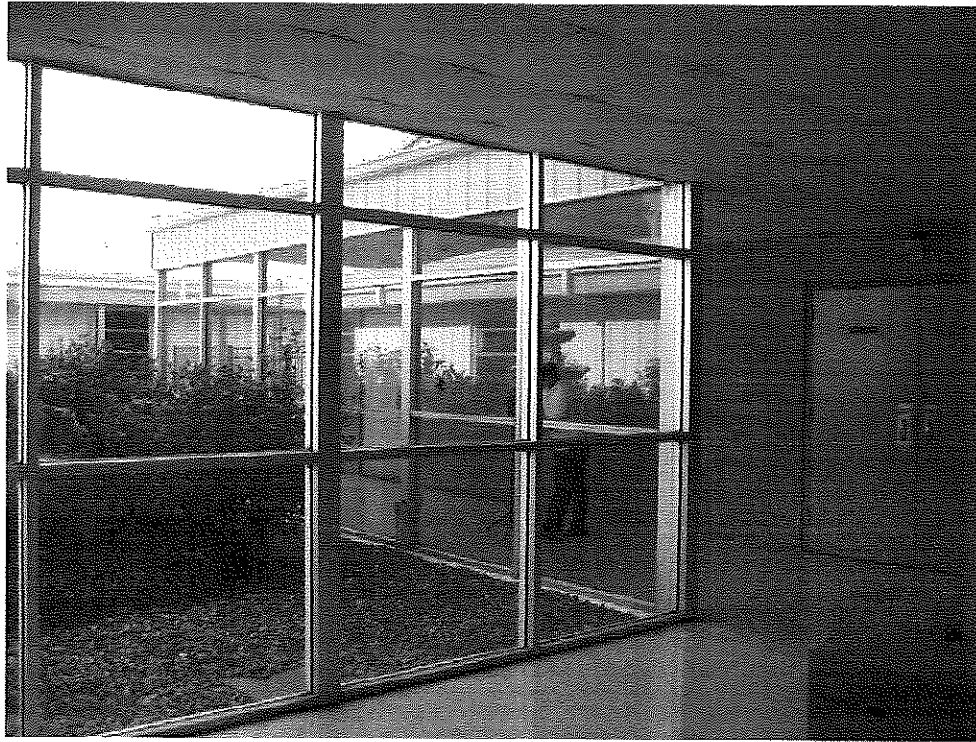
Appendix A provides a figure illustrating the locations where bulk caulk as well as air and surface wipe samples were collected. Six unique types of caulk were identified, based on texture and color, and sampled. PCBs were detected at concentrations exceeding 50 ppm in 6 of the 17 caulk samples collected. Table 1 provides the bulk caulk sample results; the laboratory report is located in Appendix B.

| Table 1 Analytical Results for Polychlorinated Biphenyls in Bulk Caulk Samples from Pollock Elementary School, Pollock, Louisiana, July 30, 2014 | | | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|--------------------|--------------------|------------------|
| Sample ID | Description | Aroclor 1254 (ppm) | Aroclor 1260 (ppm) | Total PCBs (ppm) |
| 154923 | Aluminum window and floor in glass hallway area of Building A near auditorium entrance (gray and white) | 31,700 | 47,100 | 78,800 |
| 154924 | Brick to floor in glass hallway area of Building A near auditorium entrance (white) | 28 | 6 | 34 |
| 154925 | Door frame in glass hallway area of Building A near auditorium entrance (gray and white) | 25,600 | 38,700 | 64,300 |
| 154926 | Door frame in glass hallway area of Building A near auditorium entrance (white, crumbly) | 19 | 3 | 22 |
| 154927 | Glass and frame on sliding glass door in glass hallway area of Building A near auditorium entrance (gray) | 3 | — | 3 |
| 154928 | Window frame and metal exterior in glass hallway area of Building A near auditorium entrance (above ceiling tile; gray) | 22,500 | 27,400 | 49,900 |
| 154929 | Window frame and metal exterior above ceiling tile in glass hallway area of Building A near auditorium entrance (gray; duplicate to 154928) | 30,900 | 37,900 | 68,800 |
| 154930 | Window and brick in boys bathroom in Auditorium (gray) | ND | ND | ND |
| 154931 | Exterior door frame to brick of north entrance to auditorium building (gray) | 15,000 | 19,100 | 34,100 |
| 154932 | Expansion joint in floor in Building A, near auditorium entrance (gray, hard) | ND | ND | ND |
| 154933 | Expansion joint in floor in Building A, North Wing (gray, hard) | ND | ND | ND |
| 154934 | Window and sill in Building B, hallway (white, soft) | ND | ND | ND |
| 154935 | Window and sill in Building B, hallway (gray, soft) | ND | ND | ND |
| 159436 | Window and sill in Room B11 of Building B (gray, hard) | ND | ND | ND |
| 159437 | Window and sill in Room B12 of Building B (white, hard) | ND | ND | ND |
| 159438 | Auditorium north entrance interior aluminum door frame and brick (gray) | 24,500 | 28,800 | 53,300 |
| 159439 | Main entrance window interior aluminum window frame and brick (gray, soft) | ND | ND | ND |
| PCB polychlorinated biphenyl ppm parts per million ND non detect | | | | |
| ¹ Polychlorinated biphenyl concentration analysis performed by Alpha Analytical, Inc., Westborough, Massachusetts, using U.S. Environmental Protection Agency (EPA) Method 8082 (GC/ECD). ² Aroclor 1016, 1221, 1232, 1242, 1248, 1262 and 1268 were also tested. All results below reporting levels, unless noted. | | | | |

Photograph 1 depicts the primary PCB caulk and the typical installation detail between the metal window frame and brick wall. Caulk with elevated concentrations of PCBs was found in a limited number of locations at metal window and door frames adjacent to brick, floor, or metal wall components. Photograph 2 depicts a typical section of the School where PCB caulk was used.



Photograph 1 Typical Caulking Detail



Photograph 2 Typical Wall Section

PROPOSED INTERIM CLEAN UP PLAN

The scope of the proposed interim clean-up plan includes removal of approximately 660 linear feet of caulk and cleaning of adjacent materials as listed in Table 2.

| Table 2 Estimated Quantities of Caulk Requiring Mitigation from Pollock Elementary School, Pollock, Louisiana | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|-----------------------|
| Location | Installation | Estimated Linear Feet |
| Connector hallway | Caulk between floor and windows | 137 |
| | Caulk around doors (outside of auditorium, facing atrium) | 21 |
| | Caulk around doors (inside auditorium) | 63 |
| | Ceiling caulk | 222 |
| Side entrance (south side) - | Interior - Caulk around windows and doors | 52 |
| | Exterior - Caulk around windows and doors | 52 |
| Side entrance (north side)- | Interior - Caulk around windows and doors | 56 |
| | Exterior - Caulk around windows and doors | 56 |
| | Total | 658 |
| PCB polychlorinated biphenyl ppm parts per million ¹ Polychlorinated biphenyl concentration analysis performed by Test America, Inc., North Canton, Ohio, using U.S. Environmental Protection Agency (EPA) Method 8082 (GC/ECD). | | |

The Grant Parish School District will undertake the following mitigation activities:

- Removal of approximately 660 linear feet of accessible PCB-containing caulk with total PCB concentrations that are greater than or equal to 50 ppm. The contractor will be required to employ measures to limit the potential spread of PCB caulk residues, such as the use of HEPA-filtered vacuum cleaners and wet removal methods, where appropriate. The work area will be isolated to prevent unauthorized entry and the flooring or ground adjacent to the work area will be protected with durable plastic sheeting or tarps to prevent the ground from becoming contaminated with PCB caulk residue.
- Upon removal of the caulk, cleaning and wipe testing of adjacent materials will be completed.
- EH&E or its representatives will collect confirmatory wipe samples from cleaned adjacent materials. If results from the wipe testing indicate PCBs at levels greater than 1 µg/100 cm² on adjacent materials, the areas will be re-cleaned and retested.
- Surfaces that cannot be cleaned to the surface criterion of 1 µg/100 cm² will be encapsulated with a compatible sealant. Once dry and cured, the encapsulated surfaces will be re-sealed.
- During the two year time period between completion of the interim mitigation measure and final abatement of the caulk, air and wipe samples will be collected twice per year during the summer and winter seasons. Air samples will be collected at representative areas throughout the school. Wipe samples will be collected at encapsulation sites to ensure that break-through is not occurring.

Soil samples from the building drip line have not been collected, and some of the PCB-containing caulking is located adjacent to grass or landscaping stones. Soil samples will also be collected after the interim measures are put in place to assess any spread of PCB-containing material into soil surrounding the building's exterior.

RISK ASSESSMENT

Ecological Risk

The caulk is a non-liquid form of PCBs, and there is no visual evidence that the PCB caulk has contaminated the adjacent ground. By removing and properly disposing of the caulk, and cleaning surfaces of PCB residues, the School will minimize potential exposures to human and ecological receptors.

Human Health Risk Assessment

Air Sampling

EH&E collected air samples for analysis of PCB homologs (modified EPA Method 8270D-SIM) on July 29, 2014. Two blanks and one duplicate were collected for quality assurance purposes. One outdoor air sample was collected for comparison purposes. The samples were collected with polyurethane foam (PUF) sampling media in borosilicate glass tubes (prepared and provided by Alpha Analytical, Mansfield, Massachusetts) using a calibrated air sampling pump (SKC Quick Take, SKC Inc., Eighty Four, Pennsylvania). At each location, air samples were collected to coincide with normal school hours (approximately 7 hours) at a flow rate of 1.0 liter per minute. All samples were sent to Alpha Analytical, Inc. for analysis.

Table 3 provides a summary of the air sampling data collected at the School. Air sampling locations are provided in Appendix C. The laboratory report is provided as Appendix D. Results of the air samples collected in the School indicate airborne concentrations do not exceed the screening level indoor air values provided by the EPA for elementary age school children (300 ng/m^3). The school building is used by students in grades five and six, who are typically younger than 12 years of age. Total PCB concentrations in indoor air ranged from below detection (approximately 7.7 ng/m^3) to 240 ng/m^3 , with the highest level measured in a hallway alcove that is not occupied on a continuous basis by staff or students. Concentrations in the classrooms ranged from below detection to 62 ng/m^3 .

Air samples from five classrooms were collected under normal operating conditions with the windows closed and the air-conditioning operating using existing thermostat settings. All room thermostats were set to approximately 72 degrees Fahrenheit ($^{\circ}\text{F}$), and facilities staff stated that systems run 24-hours per day at that setting. Additional air samples were collected in a glassed-in hallway area that adjoins the auditorium to the hallways and classrooms of Building A. PCB-containing caulk is located in these hallways. This is the area that appears to have been an addition constructed after the original school, and the construction is similar to the entrances on the north and south side of the auditorium, which were also shown to have PCB-containing caulk.

Table 3 Summary of Air Sampling Results for Polychlorinated Biphenyls from the Pollock Elementary School, Pollock, Louisiana, July 29, 2014

| Sample ID | Location | Parameter ¹ | Results (ng/m ³) |
|-----------|---------------------------------------------------|------------------------|------------------------------|
| 154897 | Hallway in front of auditorium | Monochlorobiphenyls | ND |
| | | Dichlorobiphenyls | ND |
| | | Trichlorobiphenyls | 16.3 |
| | | Tetrachlorobiphenyls | 56.2 |
| | | Pentachlorobiphenyls | 71.6 |
| | | Hexachlorobiphenyls | 38.2 |
| | | Heptachlorobiphenyls | 16.7 |
| | | Octachlorobiphenyls | ND |
| | | Nonachlorobiphenyls | ND |
| | | Decachlorobiphenyl | ND |
| | | Total Homologs | 199 |
| 154898 | Hallway in front of auditorium (duplicate 154897) | Monochlorobiphenyls | ND |
| | | Dichlorobiphenyls | ND |
| | | Trichlorobiphenyls | 19.1 |
| | | Tetrachlorobiphenyls | 69.0 |
| | | Pentachlorobiphenyls | 87.3 |
| | | Hexachlorobiphenyls | 44.8 |
| | | Heptachlorobiphenyls | 20.5 |
| | | Octachlorobiphenyls | ND |
| | | Nonachlorobiphenyls | ND |
| | | Decachlorobiphenyl | ND |
| | | Total Homologs | 240 |
| 154899 | Hallway connecting auditorium and classrooms | Monochlorobiphenyls | ND |
| | | Dichlorobiphenyls | ND |
| | | Trichlorobiphenyls | 13.6 |
| | | Tetrachlorobiphenyls | 33.3 |
| | | Pentachlorobiphenyls | 36.7 |
| | | Hexachlorobiphenyls | 21.4 |
| | | Heptachlorobiphenyls | 11.7 |
| | | Octachlorobiphenyls | ND |
| | | Nonachlorobiphenyls | ND |
| | | Decachlorobiphenyl | ND |
| | | Total Homologs | 117 |
| 158900 | Classroom A6—middle wing | Monochlorobiphenyls | ND |
| | | Dichlorobiphenyls | ND |
| | | Trichlorobiphenyls | 12.6 |
| | | Tetrachlorobiphenyls | 20.9 |
| | | Pentachlorobiphenyls | 11.7 |
| | | Hexachlorobiphenyls | 10.8 |
| | | Heptachlorobiphenyls | ND |
| | | Octachlorobiphenyls | ND |
| | | Nonachlorobiphenyls | ND |
| | | Decachlorobiphenyl | ND |
| | | Total Homologs | 56.0 |

| Table 3 Continued | | | |
|-------------------|-------------------------|------------------------|------------------------------|
| Sample ID | Location | Parameter ¹ | Results (ng/m ³) |
| 154901 | Classroom A4—front wing | Monochlorobiphenyls | ND |
| | | Dichlorobiphenyls | ND |
| | | Trichlorobiphenyls | ND |
| | | Tetrachlorobiphenyls | 11.5 |
| | | Pentachlorobiphenyls | ND |
| | | Hexachlorobiphenyls | ND |
| | | Heptachlorobiphenyls | ND |
| | | Octachlorobiphenyls | ND |
| | | Nonachlorobiphenyls | ND |
| | | Decachlorobiphenyl | ND |
| | | Total Homologs | 11.5 |
| 154902 | Classroom A9—back wing | Monochlorobiphenyls | ND |
| | | Dichlorobiphenyls | ND |
| | | Trichlorobiphenyls | 14.6 |
| | | Tetrachlorobiphenyls | 24.4 |
| | | Pentachlorobiphenyls | 13.5 |
| | | Hexachlorobiphenyls | 9.7 |
| | | Heptachlorobiphenyls | ND |
| | | Octachlorobiphenyls | ND |
| | | Nonachlorobiphenyls | ND |
| | | Decachlorobiphenyl | ND |
| | | Total Homologs | 62.2 |
| 154903 | Outdoor | Monochlorobiphenyls | ND |
| | | Dichlorobiphenyls | ND |
| | | Trichlorobiphenyls | ND |
| | | Tetrachlorobiphenyls | ND |
| | | Pentachlorobiphenyls | ND |
| | | Hexachlorobiphenyls | ND |
| | | Heptachlorobiphenyls | ND |
| | | Octachlorobiphenyls | ND |
| | | Nonachlorobiphenyls | ND |
| | | Decachlorobiphenyl | ND |
| | | Total Homologs | ND |
| 154904 | Classroom B3—west wing | Monochlorobiphenyls | ND |
| | | Dichlorobiphenyls | ND |
| | | Trichlorobiphenyls | ND |
| | | Tetrachlorobiphenyls | ND |
| | | Pentachlorobiphenyls | ND |
| | | Hexachlorobiphenyls | ND |
| | | Heptachlorobiphenyls | ND |
| | | Octachlorobiphenyls | ND |
| | | Nonachlorobiphenyls | ND |
| | | Decachlorobiphenyl | ND |
| | | Total Homologs | ND |

Table 3 Continued

| Sample ID | Location | Parameter ¹ | Results (ng/m ³) |
|-----------|--------------------------------|------------------------|------------------------------|
| 154905 | Classroom B11—east wing | Monochlorobiphenyls | ND |
| | | Dichlorobiphenyls | ND |
| | | Trichlorobiphenyls | ND |
| | | Tetrachlorobiphenyls | ND |
| | | Pentachlorobiphenyls | ND |
| | | Hexachlorobiphenyls | ND |
| | | Heptachlorobiphenyls | ND |
| | | Octachlorobiphenyls | ND |
| | | Nonachlorobiphenyls | ND |
| | | Decachlorobiphenyl | ND |
| | | Total Homologs | ND |
| 154906 | Hallway adjacent to auditorium | Monochlorobiphenyls | ND |
| | | Dichlorobiphenyls | ND |
| | | Trichlorobiphenyls | 13.4 |
| | | Tetrachlorobiphenyls | 23.1 |
| | | Pentachlorobiphenyls | 34.4 |
| | | Hexachlorobiphenyls | 21.7 |
| | | Heptachlorobiphenyls | ND |
| | | Octachlorobiphenyls | ND |
| | | Nonachlorobiphenyls | ND |
| | | Decachlorobiphenyl | ND |
| | | Total Homologs | 92.4 |
| 154907 | Media blank | Monochlorobiphenyls | ND |
| | | Dichlorobiphenyls | ND |
| | | Trichlorobiphenyls | ND |
| | | Tetrachlorobiphenyls | ND |
| | | Pentachlorobiphenyls | ND |
| | | Hexachlorobiphenyls | ND |
| | | Heptachlorobiphenyls | ND |
| | | Octachlorobiphenyls | ND |
| | | Nonachlorobiphenyls | ND |
| | | Decachlorobiphenyl | ND |
| | | Total Homologs | ND |
| 154908 | Media blank | Monochlorobiphenyls | ND |
| | | Dichlorobiphenyls | ND |
| | | Trichlorobiphenyls | ND |
| | | Tetrachlorobiphenyls | ND |
| | | Pentachlorobiphenyls | ND |
| | | Hexachlorobiphenyls | ND |
| | | Heptachlorobiphenyls | ND |
| | | Octachlorobiphenyls | ND |
| | | Nonachlorobiphenyls | ND |
| | | Decachlorobiphenyl | ND |
| | | Total Homologs | ND |

ng/m³ nanograms per cubic meter
 ND non detect (10 ng/cartridge; approximate sampling volume 1.3 m³)

¹ PCB concentration analysis performed by Alpha Analytical, Mansfield, Massachusetts, using U.S. Environmental Protection Agency (EPA) Method 8270D-SIM/NOAA-M.

Surface Wipe Sampling

Surface wipe samples were also collected from 11 locations throughout the School, and were all below laboratory detection limits. Table 4 lists the locations where samples were collected.

Appendix E includes the laboratory report for surface wipe sampling. The intention of the wipe samples was to assess the possible transfer of PCBs to surfaces that students and teachers may contact. Additionally, three high dust loading samples (154912, 154919, and 154921) were collected from locations expected to have longer term deposition of dust. This included a sample from the top of a trophy case located in the glassed-in area outside the auditorium (the location with PCB-containing caulk).

| Table 4 Surface Wipe Sample Results for Polychlorinated Biphenyls from Pollock Elementary School, Pollock, Louisiana, July 30, 2014. | | | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|--------------|--------------|----------------------|
| Sample ID | Description | Aroclor 1254 | Aroclor 1260 | Total PCBs (ug/wipe) |
| 154909 | Staining on ceiling near light ballast in teacher's lounge | ND | ND | ND |
| 154911 | Window sill in front of auditorium | ND | ND | ND |
| 154912 | Top of trophy case in front of auditorium | ND | ND | ND |
| 154913 | Auditorium chair arm rest | ND | ND | ND |
| 154914 | Auditorium podium | ND | ND | ND |
| 154915 | Classroom A6, student desk | ND | ND | ND |
| 154916 | Classroom A6, student desk (replicate) | ND | ND | ND |
| 154917 | Classroom A10 computer desk | ND | ND | ND |
| 154918 | Cafeteria table top | ND | ND | ND |
| 154919 | Classroom B3 cabinet top | ND | ND | ND |
| 154920 | Building B hallway window sill | ND | ND | ND |
| 154921 | Classroom B1 top of cabinet | ND | ND | ND |
| 154922 | Field blank | ND | ND | ND |
| ND non detect (RL=0.5 ug/wipe) | | | | |
| ¹ Polychlorinated biphenyl concentration analysis performed by Alpha Analytical, Westborough, MA, using U.S. Environmental Protection Agency (EPA) Method 8082. | | | | |
| ² Aroclor 1016, 1221, 1232, 1242, 1248, 1262 and 1268 were also tested. All results were below reporting levels. | | | | |

Appendices A through D include site plans showing locations of air, wipe and bulk sample collection and lab reports. Appendix E includes a quality assurance/quality control plan for assessing continued performance of the mitigation.

If you have any comments or questions regarding this report, please contact either of us at 1-800-TALK EHE (1-800-825-5343).

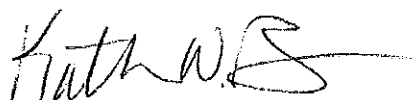
Sincerely,



Kevin Coghlan, M.S., C.I.H.
Chief Operating Officer



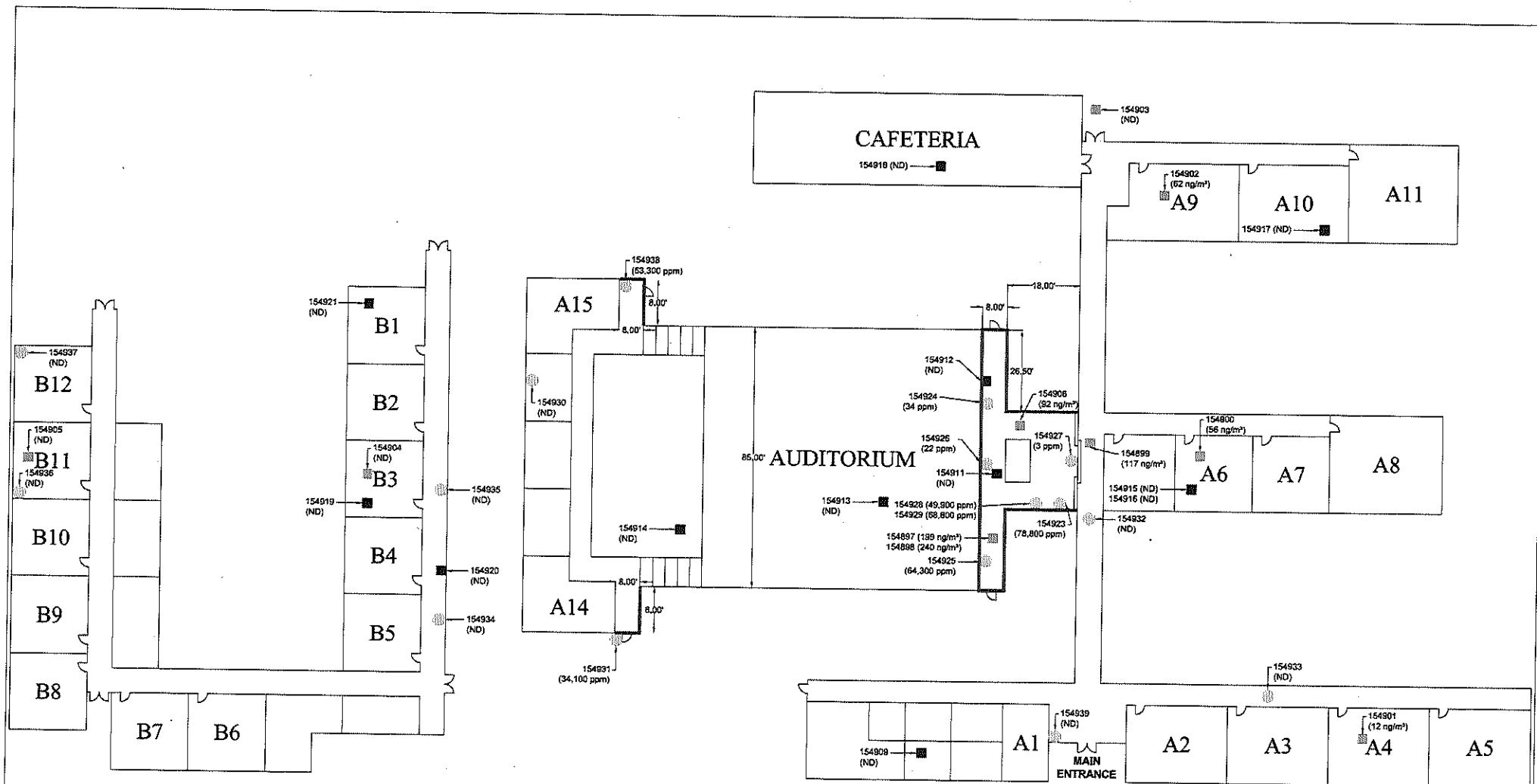
David L. MacIntosh, Sc.D., C.I.H.
Chief Science Officer



Kathleen Ward Brown, Sc.D.
Staff Scientist

| | |
|------------|----------------------------------------|
| Appendix A | Bulk, Air, and Wipe Sampling Locations |
| Appendix B | Bulk Sample Laboratory Report |
| Appendix C | Air Sample Laboratory Reports |
| Appendix D | Surface Wipe Sample Laboratory Report |
| Appendix E | Quality Assurance/Quality Control Plan |
| Appendix F | Limitations |

APPENDIX A
BULK, AIR AND WIPE SAMPLING LOCATIONS



LEGEND

- AIR SAMPLING LOCATIONS
- BULK SAMPLING LOCATIONS
- SURFACE WIPE SAMPLING LOCATIONS
- PCB-CONTAINING CAULK (≥ 50 PPM)

NOTES

1. NOT TO SCALE.
2. LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
3. BASED ON EHEC'S ASSESSMENT ON JULY 30, 2014.

TITLE:

BUILDING "A" & "B" AIR, BULK, & SURFACE WIPE SAMPLING LOCATIONS

CLIENT:

BARON & BUDD, P.C.

LOCATION:

**POLLOCK ELEMENTARY SCHOOL
4001 HIGHWAY 8
POLLOCK, LOUISIANA**

FIGURE ID:

A.1

DATE:

7/30/14

CREATED:

TQT

PROJECT:

19374

PAGE 1 OF 1



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APPENDIX B
BULK SAMPLE LABORATORY REPORT